Consumers Power
POWERING MICHIGAN'S PROGRESS
General Offices: 1945 West Parnall Road, Jackson, MI 49201 • (517) 788-0550

May 14, 1986

Director,
Nuclear Reactor Regulation
US Nuclear Regulatory Commission
Washington, DC 20555

DOCKET 50-255 - LICENSE DPR-20 - PALISADES PLANT -
UPDATED PLANS FOR PROVIDING FUEL ASSEMBLY GRID QUALIFICATION

By letters dated July 9, 1982 and May 16, 1984, Consumers Power Company indicated an intention to incorporate a redesigned spacer grid for Palisades fuel beginning with Reload Batch L. This redesigned grid was to have addressed the asymmetric blowdown loads issue with the final design being dependent on the resolution of that issue.

The results of analyses discussed in References 3 and 4, NRC reviews of those analyses, and the final rule noted in Reference 5, have led us to the conclusion that with a relatively small amount of additional documentation leak-before-break assumptions can be shown to be valid for the Palisades Plant. With the elimination of the assumption of a double ended guillotine break the assumption of asymmetric blowdown loading on the fuel assemblies can also be eliminated. On this basis, the only remaining issue is the analysis of the current grid design using the updated seismic methods required by Regulatory Guide 1.60 as part of the SEP program. The seismic design of the fuel assembly grids was previously verified by the fuel vendor using methods based on RDT Standard F9-2T, "Seismic Requirements for Design of Nuclear Power Plants and Test Facilities," January 1974.

Based on the above discussion, Consumers Power Company has decided to delay any consideration of a modified grid design for one cycle to reload M which is currently scheduled for delivery in February of 1989.

There are significant cost savings and significant safety margin gains to be realized by eliminating the need for fuel grids designed to withstand asymmetric blowdown loads. The grids having this design capability are projected to have a 25% higher pressure drop than current Palisades fuel spacer grids. This additional pressure drop would cause up to a 5% departure from nucleate boiling (DNB) safety margin penalty depending on the design of the other grids concurrently residing in the core. Since Palisades is already DNB limited due to steam generator tube plugging levels, this would result in a direct reduction in achievable power. In addition, it would significantly add to the penalty that Palisades will experience in its transition to a low leakage (fluence) core design, as required by NRC letter dated May 6, 1986, because

A001 1/0 Add: NRR PWR-B ADTS NRR/DSRO/RSIB RM/DDAMI/MIB

the low leakage loading also causes an additional reduction in DNB safety margin.

The overall schedule for fuel and core design changes on Palisades Fuel can be summarized as follows:

1. A transition to a low leakage core design will begin with the next reload (Reload L) scheduled for delivery in July 1987. This is being accelerated in order to minimize end-of-life pressure vessel fluence.

2. Seismic analysis to satisfy the SEP requirements will be completed before a final fuel assembly design is committed to fabrication for Reload M. It is believed that any grid design changes required would be minor and would not significantly impact DNB margin.

As a matter of information, Reload M will be the first reload under a new reload fuel contract and could thus be supplied by a different fuel vendor. Additionally, DNB margin which will be reduced because of higher peaking expected from a low leakage core design will be recovered to the extent possible, with the installation of a modified Reactor Protective System (RPS) during the cycle 7 refueling outage. Thus, the modified RPS will begin operation with the introduction of Reload L.

Consumers Power Company will work expeditiously to submit, as soon as reasonably possible, a plant specific request for an exemption to General Design Criteria 4 for the Palisades Plant.

James L Kuemin
Staff Licensing Engineer

CC Administrator, Region III, USNRC
NRC Resident Inspector - Palisades

References:
1. Letter from David J VandeWalle to Dennis M Crutchfield dated July 9, 1982
2. Letter from Brian D Johnson to Dennis M Crutchfield dated May 16, 1984
3. Letter from Darrell G Eisenhut to all Operating PWR Licensees, Construction Permit Holders and Applicants for Construction Permits, dated February 1, 1984 (Generic Letter 84-04)
4. Leak Before Break Evaluation of the Main Loop Piping of a CE Reactor System, Rev 1, November 1983, Enclosure 4 to CESSAR
5. Federal Register Volume 51, No. 70, "10CFR, Part 50, Modification of General Design Criterion 4 Requirements for Protection Against Dynamic Effects of Postulated Pipe Ruptures," Final Rule.