Commonwealth Edison
One First National Plaza, Chicago, Illinois
Address Reply to: Post Office Box 767
Chicago, Illinois 60690

April 12, 1979

Director of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Dresden Station Unit 2
Response to Request for Additional Information Concerning the Proposed Amendment to Operating License DPR-19 to Support Reload No. 4
NRC Docket No. 50-237

References (a): C. Reed letter to Director of Nuclear Reactor Regulation dated January 15, 1979

(b): R. E. Engel letter to P. S. Check dated November 1, 1978

Dear Sir:

Reference (a) transmitted our proposed amendment to the License and Appendix A, Technical Specifications, to support Reload No. 4 for Dresden Unit 2.

In a conference call on April 10, 1979 with Commonwealth Edison, General Electric Co., and the NRC Staff, additional information was requested concerning operation during coastdown and confirming the applicability of information presented in Reference (b) to Dresden Unit 2.

With respect to Reference (b), the following questions were asked:

1. Are the ECCS which would remain operable for Dresden 2 the same as for the "limiting" plant?

2. How do the Dresden 2 values of MAPLHGR and the ratio of vessel volume to ADS capacity compare to the "limiting" plant values and what range of these characteristics were tabulated?

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In response to question 1, we have reviewed the Dresden 2 design and confirmed that the minimum systems available reported in Reference (b) would also be available at Dresden 2.

For question 2, General Electric Company has examined their records and found that although the Dresden 2 ratio of vessel volume to ADS capacity is slightly conservative compared to the "limiting" plant, the use of retrofit fuel for Reload No. 4 has caused a change in the Dresden 2 MAPLHGR values. Because of this, reevaluation is being performed for Dresden 2 to determine whether or not the peak clad temperature (PCT) value is bounded by the value reported in Reference (b) for the "limiting" plant. Since this concern affects only the small break analysis, the results of the reevaluation will not change the limiting PCT for Dresden 2 which occurs for a large break. The results of this reevaluation will be provided in another transmittal.

With respect to the coastdown operation, Attachment 1 to this transmittal provides the additional information requested in the April 10 conference call. We believe that this provides the necessary justification to allow coastdown to 40% power as requested in Reference (a).

Please address any questions you may have concerning this matter to this office.

One (1) signed orignal and thirty-nine copies of this transmittal and attachment are provided for your use.

Very truly yours,

C. Reed

Cordell Reed
Assistant Vice-President

ATTACHMENT 1

References

1. R. L. Bolger (CECo) Letter to B. C. Rusche (NRC), "Quad Cities Station Unit 2 Proposed Amendment to Facility License No. DPR-30, Docket No. 50-265," dated June 11, 1976.

2. R. L. Bolger (CECo) letter to E. G. Case (NRC), "Dresden Station Unit 2 Proposed Amendment to Facility Operating License No. DPR-19 to Permit Power Coastdown from 70% Power to 40% power, NRC Docket No. 50-237," dated June 6, 1977.

3. "General Electric Boiling Water Reactor Generic Reload Fuel Application", NEDO-24011, March 1978.

References 1 and 2 present unit specific coastdown analyses from 100% power to 70% and 40% for Quad Cities Unit 2 Reload 1 Cycle 2A and Dresden Unit 2 Reload 2 Cycle 5, respectively. The normal operating limits which were presented in the specific reload licensing submittal for the quoted cycles were shown to be conservative with respect to operation in the coastdown mode.

Specifically, Reference 1 indicated, that for the Quad Cities Unit 2 Reload 1 Cycle 2A limiting pressurization event, the peak steamline pressure decreased from 1200 psig at 90% power to 1157 psig at 70% power, indicating an increasing margin to the lowest safety valve setpoint during the coastdown mode. Also, the Δ CPR for the coastdown conditions were evaluated with the following results:

Power Level %	7x7 Δ CPR	8x8 Δ CPR
100	.23	.29
90	.16	.22
80	.16	.21
70	.15	.19

The above Δ CPRs for operation in the coastdown mode were bounded by the normal operating Δ CPR limits.

Reference 2 indicated that for the Dresden 2 Reload 2 Cycle 5 limiting pressurization event, the peak steamline pressure decreased from 1204 psig at 90% power to 1097 psig at 40% indicating an increasing margin to the lowest safety valve setpoint during the coastdown mode. Also, from approximation methods, the ΔCPR for the coastdown conditions were evaluated with the following results for the turbine trip without bypass transient:

Power Level %	7x7 Δ CPR	8x8 Δ CPR
100	.23	.29
90	.18	.24
70	.12	.16
55	.12	.16
40	.06	.08

Again the ΔCPRs for the limiting pressurization event in the coastdown mode were bounded by the normal operating Δ CPR limits.

Although the absolute magnitude of the peak steamline pressures and ΔCPRs differ between the two referenced coastdown analyses, both analyses demonstrated that the peak steamline pressures and ΔCPRs during the coastdown mode of operation are conservative with respect to and are bounded by the normal operating limits for the respective cycles for which the specific analyses were performed. It should be noted that although the limiting pressurization event usually occurs at end of cycle, the limiting ΔCPR event may not occur at the end of cycle, i.e. the end of cycle may not be limiting with respect to the ΔCPR. The analyses demonstrate the trend of increasing margins to normal operating limits as coastdown progresses.

The presence of retrofit fuel (8x8R) in the core will have no effect on the trends in the pressure margins and ΔCPRs illustrated in References 1 and 2. Although the retrofit fuel would not be expected to give identical numerical values as those in the references for coastdown operation, the trend of more margin during coastdown with respect to the normal operating limits will not change.

The above trends can be explained by noting that the severity of the transient response of the core continually decreases during coastdown due to the dominant effect of the decreasing power level during coastdown. Since the transient response calculations are based on a point reactor kinetics model as described in Reference 3, the primary input parameters (void coefficient and scram reactivity) are core average values and are not fuel type dependent. As shown in References 1 and 2, the void coefficient becomes less severe during coastdown and the scram reactivity becomes more severe with respect to impact on the transient analyses. The analyses show , however, that the combined effect of the input parameter changes when coupled with the decrease in power level results in increased pressure and thermal margins with respect to the normal operating limits.

The reactivity characteristics of the 8x8R fuel are essentially identical to those of the 8x8 fuel as shown in Reference 3. Because of this, the power decay curve during coastdown will follow the same trend for both fuel types. In addition, the thermal response of the two fuel designs are essentially the same. Thus, the change in ΔCPR during coastdown will have the same trend for both fuel types, with that trend demonstrating increasing margins during coastdown with respect to the normal operating limits.

Therefore, the transient result trends shown in References 1 and 2 will remain the same with the addition of 8x8R fuel to the core and the normal cycle-operating limits will remain conservative during operation in the coastdown mode.