AUG 27 1975

Docket No. 50-237

Commonwealth Edison Company
ATTN: Mr. J. S. Abel
Nuclear Licensing Administrator -
Boiling Water Reactors
P. O. Box 767
Chicago, Illinois 60690

Gentlemen: Re: Change to Bases

In a letter dated July 23, 1975, you transmitted the results of your eddy current inspection for inverted poison tubes and an analysis of the potential effect of B_4C compaction in the inverted tubes remaining in the Dresden Unit 2 reactor. You also requested discontinuance of the actions required in the letter from D. J. Skovholt dated April 1, 1974, pertaining to inverted poison tubes and an amendment to the Bases for the reactivity margin-core loading requirements of the Technical Specifications, Appendix A of DPR-19.

A total of 7 inverted tubes in 6 control rods (0.05% of the total tubes in all control rods) were left inside the core. The potential shutdown margin loss assuming full B_4C settling in these 7 inverted tubes was calculated to be 0.02% ΔK. This value should be added to the technical specification shutdown margin requirements (included in the value of R) as long as these blades remain in the core. You concluded, and we agree, that the potential effects of B_4C settling on the rod drop accident and pressurization transients are negligible.

We have reviewed your submittal and concluded that the presence of 7 inverted tubes does not significantly alter previous safety considerations. Accordingly, the three requirements specified on the first page of the letter from D. J. Skovholt dated April 1, 1974, are no longer applicable.

To implement the above requirements, the bases for the Technical Specifications appended to License No. DPR-19 are changed as requested by revising the second paragraph of section A.1, page 61, to read as follows:

> The value of R is the difference between the calculated core reactivity at the beginning of the operating cycle and the calculated value of core reactivity any time later in the cycle where it would be greater than at the beginning. The

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value of R shall include the potential shutdown margin loss assuming full B_4C settling in all inverted poison tubes present in the core. A new value of R must be determined for each new fuel cycle.

A revised page 61 incorporating the above basis change is enclosed.

Sincerely,

Original Signed by:
Dennis L. Ziemann

Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Reactor Licensing

Enclosure:
Revised Page 61

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Bases:

A. Reactivity Limitations

1. Reactivity margin – core loading

The core reactivity limitation is a restriction to be applied principally to the design of new fuel which may be loaded in the core or into a particular refueling pattern. Satisfaction of the limitation can only be demonstrated at the time of loading and must be such that it will apply to the entire subsequent fuel cycle. The generalized form is that the reactivity of the core loading will be limited so the core can be made subcritical by at least R + 0.25%Δk in the most reactive condition during the operating cycle, with the strongest control rod fully withdrawn and all others fully inserted. The value of R in %Δk is the amount by which the core reactivity, at any time in the operating cycle, is calculated to be greater than at the time of the check; i.e., the initial loading. R must be a positive quantity or zero. A core which contains temporary control or other burnable neutron absorbers may have a reactivity characteristic which increases with core lifetime, goes through a maximum and then decreases thereafter. See Figure 3.3.2 of the SAR for such a curve.

The value of R is the difference between the calculated core reactivity at the beginning of the operating cycle and the calculated value of core reactivity any time later in the cycle where it would be greater than at the beginning. The value of R shall include the potential shutdown margin loss assuming full B4C settling in all inverted poison tubes present in the core. A new value of R must be determined for each new fuel cycle.

The 0.25%Δk in the expression R + 0.25%Δk is provided as a finite, demonstrable, subcriticality margin. This margin is demonstrated by full withdrawal of the strongest rod and partial withdrawal of an adjacent rod to a position calculated to inset at least R + 0.25%Δk in reactivity. Observation of sub-criticality in this condition assures sub-criticality with not only the strongest rod fully withdrawn but at least a R + 0.25%Δk margin beyond this.

2. Reactivity margin – inoperable control rods

Specification 3.3.A.2 requires that a rod be taken out of service if it cannot be moved with drive pressure. If the rod is fully inserted and then disarmed electrically*, it is in a safe position of maximum contribution to shutdown reactivity. If it is disarmed electrically in a non-fully inserted position, that position shall be consistent with the shutdown reactivity limitation stated in Specification 3.3.A.1. This assures that the core can be shutdown at all times with the remaining control rods assuming the strongest operable control rod does not insert. An allowable pattern for control rods valved out of service, which shall meet this Specification, will be available to the operator. The number of rods permitted to be inoperable could be many more than the eight allowed by the Specification, particularly late in the operation cycle; however, the occurrence of more than eight could be

*To disarm the drive electrically, four amphenol type plug connectors are removed from the drive insert and withdrawal solenoids rendering the drive immovable. This procedure is equivalent to valving out the drive and is preferred, as drive water cools and minimizes crud accumulation in the drive.