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Docket No. 50-263

Northern States Power Company
ATTN: Mr. L. O. Mayer
Director of Nuclear Support Services
414 Nicollet Mall
Minneapolis, Minnesota 55401

Re: Change to Bases

Gentlemen:

In a letter dated May 10, 1974, 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 poison tubes in the Monticello Nuclear Core Control rods.

A total of 19 inverted tubes in 15 control rods (0.19% 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 19 inverted tubes was calculated to be 0.04% Δk. This value should be added to the 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 19 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on the first page of the letter from D. J. Skovholt dated April 1, 1974, pertaining to inverted poison tubes are no longer applicable.

To implement the above requirements, the bases for the Technical Specifications appended to License No. DPR-22 are changed by revising the second paragraph of Section 3.3.A.1 to read as set forth on the enclosed revised page 82 of the Technical Specifications.

Sincerely,
Original signed by:
Karl R. Goller

Karl R. Goller, Assistant Director
for Operating Reactors
Directorate of Licensing

Enclosure:
Revised Page 82

OFFICE		L:ORB-2	L:ORB-2	L:ORB-2	L:OR
SURNAME		JSapir:tlc	JShea	DLZiemann	KRGoller
DATE		10/24/74	10/23/74	10/23/74	10/24/74

Form AEC-318 (Rev. 9-53) AECM 0240

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SURNAME ➤						
DATE ➤						

Bases Continued 3.3 and 4.3:

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 FSAR 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 B_4C settling in all inverted poison tubes present in the core. New values of R must be calculated for each new fuel cycle.

The 0.25% Δk in the expression R + 0.25% Δk is provided as a finite, demonstrable, sub-criticality margin. This margin is demonstrated by full withdrawal of the strongest rod and partial withdrawal of an adjacent rod to a position calculated to insert 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 - stuck control rods

Specification 3.3.A.2 requires that a rod be taken out of service if it cannot be moved