

Report No.: SD-369/79-03, 370/79-04

Report Date: June 22, 1979

Facility: McGuire Nuclear Station - Units 1 and 2

Identification of Deficiency: Dropped Rod Analysis Deficiency

Description of Deficiency:

Westinghouse Electric Corporation informed Duke that the existing rod controller may estimate a core average power level less than actual during certain rod drop events. Also, conservatism is reduced by inconsistencies between rod control settings actually used in the equipment and those assumed in the safety analysis.

In the event of a single dropped rod, the automatic rod control system responds to the indicated consequent power reduction by withdrawing control rods to restore the steady state power level. If the instrumentation provides a low estimate of the core-wide power level, then the control system could respond to produce a power overshoot. The potential resulting power overshoot could result in calculated violation of the plant DNB limit.

A second reduction in conservatism arises because the safety analysis for the single rod drop event utilized non-conservative controller input settings which have an impact on the ability of the rod control system to minimize power overshoot and, hence, maximize DNB margins. The use of nonconservatively low values for these settings resulted in an FSAR analysis which underestimated the resulting potential power overshoot.

Additional details of the deficiency are described in a March 30, 1979 letter, NS-TMA-2063, to Mr. John G. Davis, NRC/OIE, from Mr. T. M. Anderson, Westinghouse.

Analysis of Safety Implications:

Worst case safety consequences would be a reduction in DNBR below the minimum design value.

Corrective Action:

In a meeting between representatives of the NRC Staff and Westinghouse Electric Company on April 12, 1979, a change to the setpoint of the high flux rate trip in the reactor protection system was discussed. In that meeting it was agreed that lowering (making more restrictive) the high negative rate flux trip would provide adequate protection for any postulated rod drop accident. Accordingly, this revised setpoint will be included in the technical specifications issued with each unit's operating license.

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