

PROPOSED CHANGE RTS-151
TO THE
DUANE ARNOLD ENERGY CENTER
TECHNICAL SPECIFICATIONS

The holders of License DPR-49 for the Duane Arnold Energy Center propose to amend Appendix A (Technical Specifications) to said license by deleting current pages and replacing them with the attached, new page. A list of the affected pages is given below.

In response to a GE Turbine Division recommendation, Iowa Electric proposes to modify the Turbine Control Valves (TCV) at the DAEC from partial to full arc admission.¹ The recommendation was brought about by several, recent incidents of turbine blade and wheel damage to the high pressure turbine in plants with partial arc admission. GE has determined that the most likely cause of the damage was the higher dynamic loading created by the flow imbalance set up by partial arc admission.

During the design evaluation, it was learned that this modification has a significant impact on one of the abnormal operating transients analyzed for the reload license. The proposed modification reduces the closing time on the TCV's during a Generator Load Rejection transient. The faster closing time increases the pressure spike seen by the reactor during a Load Rejection without Bypass (LRw/oBP) transient, which in turn leads to an increased CPR (Critical Power Ratio) for the event. Thus, GE reanalyzed the LRw/oBP with the new valve settings to assess the impact of the increased CPR on the MCPR operating limits previously submitted for Cycle 7 (NG-83-0100, January 14, 1983). The results of this analysis (attached) indicate that new operating limits will be required in support of the proposed modification to the TCV's. Therefore, this amendment to the Technical Specifications is to revise the MCPR operating limits, based upon this reanalysis, for both 8x8 and 8x8R/P8x8R fuel types, so that the valve modification can be implemented.

The change being made is as follows:

- 1) Revise Table 3.12-2 on page 3.12-9a to reflect the new MCPR operating limits for the 8x8 and 8x8R/P8x8R fuels.

LIST OF PAGES AFFECTED

3.12-9a

¹Partial arc refers to operation with one or more of the TCV's at a different (or partial) opening setting from the remaining valves at a given steam flow; i.e., DAEC currently operates with 3 valves at 100% open and the fourth valve at 32% open at rated conditions. The proposed modification is to change the valves so that all four valves operate synchronously, such that all the valves will be at the same opening setting at a given steamflow. For DAEC, the four TCV's will be modified to be at 54% of the current full open setting at rated conditions and physical restraints will be built into the valves to prevent opening beyond this point.

8305060066 830504
PDR ADDCK 05000331
PDR

TABLE 3.12-2

MCPR LIMITS

Fuel Type

8 x 8	1.25*
8 x 8R/P8 x 8R	1.27*

*After conversion of the Turbine Control Valves from Partial Arc to Full Arc Admission the MCPR Operating Limits will become as follows:

8 x 8	1.27
8 x 8R/P8 x 8R	1.29