



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 170 TO FACILITY OPERATING LICENSE NO. DPR-40

OMAHA PUBLIC POWER DISTRICT

FORT CALHOUN STATION, UNIT NO. 1

DOCKET NO. 50-285

1.0 INTRODUCTION

By letter dated April 7, 1995, Omaha Public Power District (OPPD) submitted a request for changes to the Fort Calhoun Station (FCS), Unit No. 1, Technical Specifications (TS). The requested changes would relocate the axial power distribution (APD) limits to the Core Operating Limits Report (COLR).

2.0 EVALUATION

OPPD proposes to revise the FCS Unit No. 1 TS to relocate the APD limits (Figure 1-2) to the COLR. The COLR is contained in the Technical Data Book of the FCS Operating Manual.

Relocation of cycle specific parameters to the COLR was approved in TS Amendment 141 for FCS. The existing APD limits contained in the TS were revised prior to operating Cycle 8. OPPD originally requested to include the APD in the COLR. After discussion, the NRC staff and OPPD agreed that the APD did not meet the definition of cycle-specific parameters of Generic Letter 88-16, "Removal of Cycle-Specific Parameter Limits from Technical Specifications." This was due to the fact that the limits did not have to be revised frequently. Recent difficulties in operations have identified the need to modify the APD limits more frequently.

During a recent power reduction to locate a leaking fuel pin at FCS, it was noted that power could not be rapidly reduced (approximately 10-20 percent per hour) without violating the Limiting Conditions for Operations (LCO) Axial Shape Index (ASI) restrictions or the APD limits. The loss of rapid shutdown ability is magnified by the use of an extreme low radial leakage fuel management which places low-power fuel assemblies in the location of the lead regulating control rod bank. The subsequent reduction in rod worth makes ASI control within the current APD limits very difficult during a rapid power reduction without tripping the plant.

Additional examination determined that the ASI requirements will need to be optimized on a cycle-specific basis in order to avoid this situation. To provide the operators with more ASI margin, the APD figure contained in the TS and LCO figures contained in the COLR will require revisions on a cycle-by-cycle basis. Operation with overly conservative setpoints, which would allow

the use of the APD figure for future operating cycles, would increase the probability of unnecessary reactor trips, resulting in a situation which may decrease the overall safety of the plant.

The LCO figures are currently optimized on a cycle-specific basis for inclusion into the COLR, and they would not change. Without the proposed TS change, in order to optimize the APD limits on a cycle-specific basis, NRC review and approval would be required prior to implementation each cycle. Therefore, the proposed change would relocate the APD figure to the COLR such that NRC review and approval of the specific limits would not be required each cycle.

The safety limits (minimum DNBR, RCS pressure, peak linear heat rate, and 10 CFR 100 releases) for each accident considered on a cycle-specific basis would not change. These safety limits are the same as those accepted by the NRC in previous cycles and will remain unchanged unless prior approval by the NRC is obtained.

The limiting safety settings (LSSSs) are developed to maintain acceptable margins to those limits. For FCS these limiting settings are presented in Section 1 of the TS. One of the key elements of the LSSS, designed specifically to protect against violation of the safety limits on DNBR and fuel centerline melt, is the APD trip. The approved methodology used to define this trip utilizes cycle dependent power distributions as opposed to cycle-independent power distributions used at many other nuclear plants. Historically, the limits of the APD have been set very conservatively with respect to the actual limits calculated in the setpoint analysis. The methodology utilized to develop the APD limits is reviewed and approved by the NRC, as required by TS 5.9.5.

Other criteria in Section 1 of the TS are developed and implemented to assure that the plant conditions during off-normal situations will not exceed the defined safety limits. These criteria include both cycle-specific reactor protective system setpoints and acceptable fuel design limits. In no case do the cycle-specific parameters contained in Section 1 conflict with or exceed the defined safety limits. By operating within the LCCs and thus maintaining the existing safety limits, the limits in the COLR remain within the safety analysis assumptions at FCS.

The use of NRC approved reload analysis methodology topical reports, as required by TS 5.9.5, does not permit substantial discretion on the part of OPPD in calculating the LSSS and LCO values nor does the NRC-approved methodology allow substantial engineering judgment on the part of the analyst preparing the reload evaluation. Therefore, assurance that the changes to the COLR are consistent with previously reviewed and approved methodology is maintained.

The staff has reviewed this TS change and has found it acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Nebraska State official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (60 FR 27339). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Steven Bloom

Date: September 1, 1995