



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENTS NOS. 83 AND 76 TO
FACILITY OPERATING LICENSES NOS. DPR-42 AND DPR-60
NORTHERN STATES POWER COMPANY
PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNITS NOS. 1 AND 2
DOCKETS NOS. 50-282 AND 50-306

1.0 INTRODUCTION

By letter dated November 3, 1987, Northern States Power Company (NSP or the licensee) requested changes to the Technical Specifications appended to Facility Operating Licenses Nos. DPR-42 and DPR-60 for the Prairie Island Nuclear Generating Plant, Units Nos. 1 and 2. The proposed modifications would change the high flux, power range (low setpoint) in Specification 2.3.A.1.b to read "... $\leq 40\%$ of rated power" rather than "... $\leq 25\%$ of rated power". This change is due to a larger than expected error in predicting radial neutron leakage at low power (rodded) core conditions found during Unit 1 Cycle 12 physics tests. Based on these tests, the high flux, power range low setpoint would have tripped the reactor at an actual power of about 33%, 8% above the current Technical Specification setpoint of 25%. The licensee has, therefore, proposed to change the Technical Specification limit to an actual power of 40% while maintaining the trip setpoint at a nominal setting of 25% of indicated power.

2.0 EVALUATION

There are only two events analyzed in the Prairie Island Final Safety Analysis Report (FSAR) which use the high flux, power range low setpoint: the uncontrolled rod cluster control assembly (RCCA) withdrawal from a subcritical position and the RCCA ejection. The licensee has reanalyzed both events to verify that the NRC staff's acceptance criteria for these events as given in Standard Review Plan Sections 15.4.1 and 15.4.8 are met with the proposed high flux, power range low setpoint change to $\leq 40\%$ of rated power.

The licensee has presented the reanalyses of these events in NSPNAD-8725, "Analysis of the Revised Low Setpoint for High Flux, Power Range," dated October 1987. For the uncontrolled RCCA withdrawal event from a subcritical condition, the results show that the primary and secondary pressures do not exceed the system design pressure and that the fuel cladding integrity is maintained since the peak clad temperature remains below even the nominal full power value. For the RCCA ejection event initiated from hot zero power conditions, the results indicate that the average hot spot fuel enthalpy remains well below the acceptance criterion of 280 calories per gram, and the maximum reactor coolant system pressure is well below the pressure that will cause stresses to exceed the emergency condition stress limit of 120% of design pressure (2500 psia).

These two events were reanalyzed using assumptions and methodology which have been approved by the NRC. The reanalyses considered both the Westinghouse optimized fuel assemblies (OFA) and the Advanced Nuclear Fuels (TOPROD) fuel assemblies which are the fuel types used at Prairie Island. Based on this, and on the fact that the reanalyses meet the NRC acceptance criteria for these events, the NRC staff concludes the proposed change of the Technical Specification limit to an actual power of 40% has been properly analyzed and that those events affected by the limit change are conservatively bounded by the safety reanalyses.

On this basis, the proposed change to Prairie Island's Technical Specification dealing with the high flux, power range low setpoint is found acceptable. By changing the Technical Specification limit to an actual power of 40%, the trip setpoint can remain at a nominal setting of 25% of indicated power without causing a Technical Specification violation.

3.0 ENVIRONMENTAL CONSIDERATION

An Environmental Assessment and Finding of No Significant Impact has been issued for these amendments (53 FR 19831, May 31, 1988).

4.0 CONCLUSION

We have 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, and (2) such activities will be conducted in compliance with the Commission's regulations, and the issuance of these amendments will not be inimical to the common defense and security or to the health and safety of the public.

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Dated: May 31, 1988