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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO.106 TO FACILITY OPERATING LICENSE NO. DPR-74

INDIANA MICHIGAN POWER COMPANY

DONALD C. COOK NUCLEAR PLANT, UNIT NO. 2

DOCKET NO. 50-316

1.0 INTRODUCTION

By letter dated October 14, 1988, the Indiana Michigan Power Company (the licensee) requested an amendment to the Technical Specifications (TSs) appended to Facility Operating License No. DPR-74 for the Donald C. Cook Nuclear Plant, Unit No. 2. The proposed amendment would revise TS 3.1.1.2, Figure 3.1-3 (required shutdown margin) such that the shutdown margin required in Modes 4 and 5 is conservatively increased. The change is necessary to conservatively bound the required shutdown margin as calculated by Advanced Nuclear Fuels Corporation (ANF) for the upcoming Unit 2 Cycle 7 reload.

2.0 EVALUATION

TS Figure 3.1-3 was added to the Unit 2 TSs via Amendment 82, dated May 21, 1986. The figure illustrates the shutdown margin necessary to provide protection against an inadvertent chemical and volume control system malfunction that results in a decrease in reactor coolant system boron concentration (reference Standard Review Plan (NUREG-0800) Section 15.4.6). The curve expresses the boron concentration required to assure the operator has at least 15 minutes to respond to a boron dilution event before minimum shutdown margin would be lost. The analysis supporting the Amendment 82 TS change is contained in ANF document XN-NF-85-64(P) Rev. 2, Supplement 1, entitled "Plant Transient Analysis for D. C. Cook Unit 2 with 10% Steam Generator Tube Plugging."

The present TS amendment was requested because ANF determined that the equation used in the referenced analysis to calculate the change in reactivity between initial (shutdown) and final (critical) boron concentration was incorrect. ANF assumed discrete values for the differential boron worth, rather than values based on the average boron concentration between the initial and final conditions. The use of discrete differential boron worth values results in a less accurate prediction of the time to loss of minimum shutdown margin, relative to the use of an average differential boron worth.

The licensee has proposed a revised Figure 3.1-3, based on a more accurate determination of boron worth performed by ANF. The new ANF analysis determines boron worth using ANF's NRC-approved XTGPWR computer code, which is ANF's standard code for reload neutronics calculations. The curve is bounding with respect to the upcoming Cycle 7 reload.

As with the previous Figure 3.1-3, the revised figure assures the operator has 15 minutes to respond to a boron dilution accident before shutdown margin is lost. The revised shutdown margin requirements are greater than or equal to the previous requirements at all points.

Since the revised requirements are conservative with respect to the previous requirements, and since the revised curve was developed using an NRC-approved neutronics code, the staff finds the change acceptable.

3.0 EMERGENCY CIRCUMSTANCES

The Commission has determined that emergency circumstances exist in that swift action is necessary to prevent delay in returning Unit 2 to service following its present refueling outage. Inadvertently, the licensee's October 14, 1988 request was not noticed by the NRC.

4.0 FINAL NO SIGNIFICANT HAZARDS DETERMINATION

The Commission's regulations in 10 CFR 50.92 state that the Commission may make a final determination that a license amendment involves no significant hazards considerations if operation of the facility, in accordance with the amendment, would not:

(1) Involve a significant increase in the probability or consequences of any accident previously evaluated; or

(2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or

(3) Involve a significant reduction in a margin of safety.

The requested amendment has been evaluated against the standards in 10 CFR 50.92 as follows:

Criterion 1

The change will result in more conservative plant operation since it will require additional shutdown margin in Modes 4 and 5. As such, the change would be expected to increase safety. Therefore, the change is not expected to involve a significant increase in the probability or consequences of a previously analyzed accident, nor should it involve a significant reduction in a margin of safety.

Criterion 2

The change will not result in any new modes of plant operation. Rather, it will impose additional restrictions on the present operational modes. Thus, it would not be expected to create the possibility of a new or different kind of accident from any accident previously analyzed or evaluated.

Criterion 3

See Criterion 1, above.

Lastly, it is noted that the Commission has provided guidance concerning the determination of significant hazards by providing certain examples (53 FR 7751) of amendments considered not likely to involve significant hazards consideration. The second of these examples refers to changes that constitute an additional limitation, restriction, or control not presently included in the TSs. The revised shutdown margin requirements are in all cases equal to or conservative with respect to the present requirements. Therefore, the example cited is relevant and the change does not involve significant hazards consideration.

5.0 STATE CONSULTATION

In accordance with the Commission's regulations, efforts were made to contact the Michigan representative. The state representative was contacted and had no comments.

6.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. We have 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 made a final no significant hazards consideration finding with respect to this amendment. Accordingly, this 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 this amendment.

7.0 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 the amendment will not be inimical to the common defense and security or to the health and safety of the public.

8.0 REFERENCES

1. Letter, M. P. Alexich (American Electric Power) to T. E. Murley (NRC), "Technical Specification Changes for Unit 2 Cycle 7," dated October 14, 1988.

2. NUREG-0800, Rev. 1, Section 15.4.6, "Chemical and Volume Control System Malfunction that Results in a Decrease in Boron Concentration in the Reactor Coolant (PWR)".

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Date: January 13, 1989