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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 103TO FACILITY OPERATING LICENSE NO. DPR-58

AND AMENDMENT NO.89 TO FACILITY OPERATING LICENSE NO. DPR-74

INDIANA AND MICHIGAN ELECTRIC COMPANY

DONALD C. COOK NUCLEAR PLANT, UNITS 1 AND 2

DOCKET NOS. 50-315 AND 50-316

INTRODUCTION

By letter dated November 13, 1986, the Indiana and Michigan Electric Company (the licensee) submitted a proposed amendment that would change Section 3/4.4.5 to address steam generator "integrity." The current Technical Specifications address OPERABLE. The licensee also proposed to change footnote 2 to Table 4.4-1 to clarify the requirement that second and subsequent inspections would be on one of two remaining steam generators respectively.

EVALUATION

The Technical Specifications Section 3/4.4.5 currently addresses OPERABLE requirements of the steam generators. The intent of Section 3/4.4.5 as supported by the Bases section appears to be steam generator tube integrity. The licensee first brought this to the staff's attention in early 1986. On May 14, 1986 in a letter from B.J. Youngblood to John Dolan, IMEC, the NRC agreed that the current Technical Specification was inappropriately worded and that the Bases section supported the intent of this specification to address the "integrity" of the steam generators. The licensee was encouraged, by the letter, to modify the Technical Specifications at their next convenience with changes we would find acceptable.

Upon receipt of the licensee's proposed license amendment, the staff undertook a re-evaluation of the position that the Technical Specification 3.4.5 dealt exclusively with integrity and that the question of operable steam generators was restricted to the issue of adequate decay heat removal which is addressed by Technical Specification 3.4.1. It was determined that additional review and consideration would be prudent to proceed with the overall change to Specification 3.4.5, i.e. change operable to integrity. Therefore, in discussions with the licensee it was decided to restrict the changes to only those needed and to defer the overall change proposal to another review. The only operation of concern to the licensee at this time for which steam generator operability is an issue is crevice flushing in Mode 4.

Crevice flushing is a process to remove corrosion causing contaminates from the crevice between the steam generator tubes and the tubesheet. The steam generators are pressurized with a small amount of water on the steam or crevice side. The

reactor coolant system is heated up with the reactor coolant pumps in operation and with one residual heat removal (RHR) system in operation and the second available per Technical Specification 3.4.1. The coolant temperature must be above 200°F (Mode 4) to provide the heat necessary to allow the steam side to boil. The pressure is released on the steam generators and the crevice area boils, forcing the contaminates out of the crevice. The process is controlled by procedure so that the steam generators are not boiled dry. This allows the contaminates to remain in solution and not return to the crevice and it allows the auxiliary or main feed water to be started without thermal shocking a hot dry steam generator. During crevice flushing, the steam generators are not removing decay heat but they are available and could be reinstated to OPERABLE/operating status with initiation of auxiliary or main feed flow control and steam control, however, the licensee proposes to flush all four steam generators at the same time. This operation is within the licensee's proposed amendment change to remove operable from Technical Specification 3.4.5; other possible operations would require additional considerations not covered by this evaluation. To assure crevice flushing all four steam generators at the same time is acceptable, our evaluation concentrated on the impact to the reactor core.

The process of crevice flushing the D.C. Cook steam generators is expected to produce a decrease in reactor system temperature. Following the flushing procedures the reactor system temperature may increase slightly as the heat load from the reactor coolant pumps and the small amount of decay heat is transferred to the operable RHR train. The licensee evaluated the effect of reactor system temperature changes on core reactivity to ensure that inadvertent criticality cannot occur. Cooldown of the reactor system cannot cause criticality since the coolant will be borated to maintain the required shutdown margin to 68°F. Heatup cannot cause criticality since the reactor will be sufficiently borated so that even with the worst case positive moderator coefficient, the required shutdown margin will be maintained. We therefore, find the crevice flushing of all four steam generators at the same time to be acceptable. In place of the requested change to Technical Specification 3.4.5, we proposed and the licensee agreed to a more limited but acceptable footnote which allows crevice flushing.

In our letter dated May 14, 1986, we further suggested clarifying language to footnote 2, Table 4.4-1 which addresses the second and subsequent inspections of steam generators after the initial inspection which covers two of the four steam generators. The footnote was to assure that the third and fourth steam generators would be covered by the second and subsequent inspections so that after three inspections, all four steam generators would be inspected. The licensee has adopted the proposed changes and we find this acceptable.

ENVIRONMENTAL CONSIDERATION

These amendments involve a change in the installation or use of the facilities' components located within the restricted areas as defined in 10 CFR 20. The staff has determined that these amendments involve 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 these amendments involve no significant hazards

consideration, and there has been no public comment on such finding. Accordingly, these amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR Sec 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 these amendments.

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: April 1, 1987