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See Proposed Change to Tech Specs

SUBJECT: Application for amends to licenses DPR-58 & DPR-74,changing TS 3/4.1.3 to increase limit for control rod misalignment at or below 85% rated thermal power. "Control Rod Misalignment Analysis" encl.

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INDIANA MICHIGAN POWER

AEP:NRC:1182

Donald C. Cook Nuclear Plant Units 1 and 2
Docket Nos. 50-315 and 50-316
License Nos. DPR-58 and DPR-74
TECHNICAL SPECIFICATION CHANGE REQUEST:
ROD MISALIGNMENT REQUIREMENT FOR MOVABLE CONTROL ASSEMBLIES

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Attn: Dr. T. E. Murley

January 17, 1994

Dear Dr. Murley:

This letter and its attachments constitute an application for amendment to the Technical Specifications (T/S) for the Donald C. Cook Nuclear Plant Units 1 and 2. Specifically, we are proposing to change T/S 3/4.1.3 for both units. These changes increase the T/S limit for control rod misalignment at or below 85% Rated Thermal Power. The changes also increase the T/S limit for control rod misalignment above 85% Rated Thermal Power if there is sufficient margin in the Heat Flux ($F_Q(Z)$) and the Nuclear Enthalpy ($F^N_{\Delta H}$) Hot Channel Factors.

A description of the proposed changes and our analysis concerning significant hazards consideration pursuant to 10 CFR 50.92 are contained in Attachment 1. Attachment 2 contains the existing T/S pages marked to reflect proposed changes. Attachment 3 contains the proposed, revised T/S pages. Attachment 4 contains the analyses to support the T/S changes.

We believe that the proposed T/S changes will not result in (1) a significant change in the amount of any effluents that may be released off-site, or (2) a significant increase in individual or cumulative occupational radiation exposure.

These proposed T/S changes have been reviewed and approved by the Plant Nuclear Safety Review Committee and by the Nuclear Safety and Design Review Committee.

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In compliance with the requirements of 10 CFR 50.91(b)(1), copies of this letter and its attachments have been transmitted to Mr. J. R. Padgett of the Michigan Public Service Commission and the Michigan Department of Public Health.

This letter is submitted pursuant to 10 CFR 50.30(b) and, as such, an oath statement is attached.

Sincerely,

E. E. Fitzpatrick
Vice President

dr

Attachments

cc: A. A. Blind
G. Charnoff
J. B. Martin - Region III
NRC Resident Inspector
NFEM Section Chief
J. R. Padgett

bc: S. J. Brewer - w/o attachment
D. H. Malin/G. John
P. A. Barrett - w/o attachment
M. L. Horvath - w/o attachment
W. G. Smith, Jr.
J. B. Shinnock - w/o attachment
J. B. Hickman, NRC - Washington, DC
DC-N-6015.1 - w/o attachment
AEP:NRC:1182

STATE OF OHIO)
COUNTY OF FRANKLIN)

E. E. Fitzpatrick, being duly sworn, deposes and says that he is the Vice President of licensee Indiana Michigan Power Company, that he has read the forgoing TECHNICAL SPECIFICATION CHANGE REQUEST: ROD MISALIGNMENT REQUIREMENT FOR MOVABLE CONTROL ASSEMBLIES and knows the contents thereof; and that said contents are true to the best of his knowledge and belief.

E E Fitzpatrick

Subscribed and sworn to before me this 17th day of January, 19 94.

Rita D. Hill
NOTARY PUBLIC

RITA D. HILL
NOTARY PUBLIC, STATE OF OHIO
MY COMMISSION EXPIRES 6-23-94

ATTACHMENT 1 TO AEP:NRC:1182

DESCRIPTION OF PROPOSED TECHNICAL SPECIFICATION CHANGES AND 10 CFR 50.92 SIGNIFICANT HAZARDS CONSIDERATION ANALYSIS

Description of Changes (both units)

1. The Limiting Condition for Operation in T/S 3.1.3.1 is changed to introduce a term "allowed rod misalignment" to replace the constant "± 12 steps" misalignment given in the existing T/S. Also, the Limiting Condition for Operation is changed to allow ± 18 steps misalignment at or below 85% of Rated Thermal Power (RTP) and from ± 12 steps to ± 18 steps misalignment above 85% RTP. The value of allowed rod misalignment for power levels greater than 85% RTP is to be obtained from the new T/S Figure 3.1-4, provided that the ratio (defined as R) of $F_{\Delta H}$ limit at 100% RTP to maximum measured $F_{\Delta H}$ is greater than 1.04.

   Action items a, b and c are changed to use "allowed rod misalignment" instead of "± 12 steps."

   Surveillance requirement 4.1.3.1.3 is added to provide for the determination of the allowed rod misalignment above 85% RTP. Specifically, this requirement states that the allowed rod misalignment for power levels greater than 85% RTP shall be determined in conjunction with the measurement of the Allowable Power Level as specified in T/S 4.2.6.2.

2. The Limiting Condition for Operation in T/S 3.1.3.2 is changed to use "allowed rod misalignment" instead of "± 12 steps" to be consistent with T/S 3.1.3.1.

   Action item b.1 and surveillance requirement 4.1.3.2 are also changed to use "allowed rod misalignment."

3. Figure 3.1-4, Allowed Rod Misalignment Above 85% RTP, is added to the T/S.

4. Bases for section 3/4.2.2 and 3/4.2.3 is changed to specify an allowed rod misalignment of ±18 steps at or below 85% RTP and an allowed rod misalignment of ±12 steps to ±18 steps above 85% RTP.

Reason for the Changes

Experience with the Analog Rod Position Indication (ARPI) System has shown that the indicated misalignment could be greater than 12 steps. As per T/S action item 3.1.3.2.a, an incore flux map has to be taken every 8 hours (incore flux maps are taken every 6 hours to be conservative) to verify the actual location of the rod. In all cases these flux maps have shown that there was no actual rod misalignment. Changing the T/S to

allow ±18 steps misalignment will reduce the usage of the flux mapping system. Heavy use of the flux mapping system may require more maintenance work and may be an ALARA concern. Furthermore, power transients (shutdowns) have been initiated as required by the T/Ss which were unnecessary. Power maneuvers and full power operation have also been limited due to ARPI indication. It should be noted that if misaligned rods are detected (via changes in Power, Quadrant Tilt or Flux Map) they are realigned using established procedures.

Justification for the Change

Power distribution calculations with rod misalignments of 18 steps (18 steps indicated + 12 step uncertainty) show that the increase in peaking factors will be accommodated at or below 85% RTP. The calculations also showed that above 85% RTP, a misalignment of 18 steps (18 steps indicated + 12 steps uncertainty) may be accommodated if the Allowable Power Level (APL) as defined in T/S 3.2.6 is at least 106% and the margin in $F_{\Delta H}$ is at least 4%. Lower levels of misalignment are allowed for lower APL values. The minimum misalignment of 12 steps is allowed without additional margin in APL and $F_{\Delta H}$. This analysis is provided in Attachment 4.

10 CFR 50.92 Significant Hazards Consideration Analysis

Per 10 CFR 50.92, a proposed amendment to an operating license will not involve a significant hazards consideration if the proposed amendment satisfies the following three criteria:

1. Does not involve a significant increase in the probability or consequences of an accident previously analyzed,

2. Does not create the possibility of a new or different kind of accident from any accident previously analyzed or evaluated, or

3. Does not involve a significant reduction in a margin of safety.

Criteria 1 and 3

As seen in Attachment 4, sufficient margin exists in power distribution at 85% RTP to allow for increased misalignment. At 100% RTP, increased misalignment is allowed only if there is adequate margin in the peaking factors. Therefore, initial conditions remain unchanged from that assumed in the safety analyses. As far as the dropped rod and rod ejection accidents are concerned, the analyses were performed with conservative assumptions to envelope the increased misalignment. It should be noted that the power dependent insertion limit for Unit 1 will be changed in a conservative manner at the beginning of cycle 14. Based on these

analyses, it is concluded that the proposed T/S changes do not significantly increase the probability or consequences of a previously analyzed accident or constitute a significant reduction in the margin of safety.

Criterion 2

The proposed T/S changes will not result in physical changes to the plant. Therefore, we believe that the proposed T/S changes will not create the possibility of a new or different kind of accident from any previously evaluated. Also, operation of the reactor with possible deeper rod insertion will not create the possibility of a new or different kind of accident.

Lastly, we note that the Commission has provided guidance concerning the determination of significant hazards by providing certain examples (48 FR 14870) of amendments considered not likely to involve significant hazards consideration. The sixth of these examples refers to changes which may result in some increase in the probability of occurrence or in the consequences of a previously analyzed accident, but the results of which are within limits established as acceptable. Therefore, we believe the example cited is applicable and that the proposed T/S changes do not involve a significant hazards consideration as defined in 10 CFR 50.92.