



November 15, 2000

C1100-05
10 CFR 50.90

Docket Nos.: 50-315
50-316

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Stop O-P1-17
Washington, DC 20555-0001

Donald C. Cook Nuclear Plant Units 1 and 2
TECHNICAL SPECIFICATION CHANGE REQUEST
ALLOWABLE POWER LEVEL

Pursuant to 10 CFR 50.90, Indiana Michigan Power Company (I&M), the Licensee for Donald C. Cook Nuclear Plant Units 1 and 2, proposes to amend Appendix A, Technical Specifications (T/S), of Facility Operating Licenses DPR-58 and DPR-74. I&M proposes to revise T/S 3.2.6, "Allowable Power Level (APL)," and T/S 1.38, definition of APL, to remove a condition that limits APL to 100% of rated thermal power. APL is a calculated value that establishes power distribution limits and reflects the available margin in the heat flux hot channel factor. Although values of APL are typically greater than 100% of rated thermal power, indicating available margin, plant operation would continue to be limited by the maximum power level stated in the operating licenses.

Attachment 1 provides a detailed description and safety analysis to support the proposed changes. Attachments 2A and 2B provide marked up T/S pages for Unit 1 and Unit 2, respectively. Attachments 3A and 3B provide the T/S pages with the changes incorporated for Unit 1 and Unit 2, respectively. Attachment 4 describes the evaluation performed in accordance with 10 CFR 50.92(c), which concludes that no significant hazard is involved. Attachment 5 provides the environmental assessment.

In order to operate the plant at the maximum power level authorized by the operating licenses and avoid the unnecessary economic burden associated with operation at reduced power, I&M requests approval of this request by March 15, 2001. A 30-day implementation period is proposed.

A001

No previous submittals affect T/S pages that are submitted in this request. No new commitments are made in this submittal.

Copies of this letter and its attachments are being transmitted to the Michigan Public Service Commission and Michigan Department of Environmental Quality, in accordance with the requirements of 10 CFR 50.91.

Should you have any questions, please contact Mr. Wayne J. Kropp, Director of Regulatory Affairs, at (616) 697-5056.

Sincerely,

A handwritten signature in black ink, appearing to read "A. C. Bakken III". The signature is stylized with a large, circular flourish at the end.

A. C. Bakken III
Site Vice President

\dmb

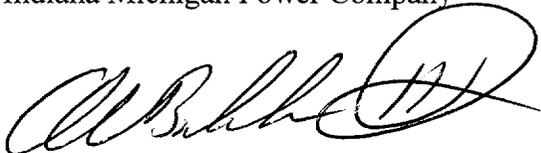
Attachments

c: J. E. Dyer
MDEQ - DW & RPD
NRC Resident Inspector
R. Whale

AFFIRMATION

I, A. Christopher Bakken III, being duly sworn, state that I am Vice President of Indiana Michigan Power Company (I&M), that I am authorized to sign and file this request with the Nuclear Regulatory Commission on behalf of I&M, and that the statements made and the matters set forth herein pertaining to I&M are true and correct to the best of my knowledge, information, and belief.

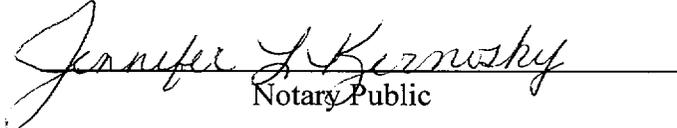
Indiana Michigan Power Company



A. C. Bakken III
Site Vice President

SWORN TO AND SUBSCRIBED BEFORE ME

THIS 15 DAY OF NOVEMBER, 2000


Notary Public

My Commission Expires 5/26/05

JENNIFER L. KERNOSKY
Notary Public, Berrien County, Michigan
My Commission Expires May 26, 2005

ATTACHMENT 1 TO C1100-05

DESCRIPTION AND SAFETY ANALYSIS FOR THE PROPOSED CHANGES

A. Summary of the Proposed Changes

Indiana Michigan Power Company (I&M), the Licensee for Donald C. Cook Nuclear Plant (CNP) Units 1 and 2, proposes to amend Appendix A, Technical Specifications (T/S), of Facility Operating Licenses DPR-58 and DPR-74. I&M proposes to revise T/S 3.2.6, "Allowable Power Level (APL)," and T/S 1.38, definition of APL, to remove a condition that limits APL to 100% of rated thermal power. APL is a calculated value that establishes power distribution limits and reflects the available margin in the heat flux hot channel factor. Although values of APL are typically greater than 100% of rated thermal power, indicating available margin, plant operation would continue to be limited by the maximum power level stated in the operating licenses.

The proposed changes are described in detail in Section E of this attachment. T/S pages that are marked to show the proposed changes are provided in Attachments 2A and 2B for Unit 1 and Unit 2, respectively. The proposed T/S pages, with the changes incorporated, are provided in Attachments 3A and 3B for Unit 1 and Unit 2, respectively.

B. Description of the Current Requirements

APL is defined in T/S 1.38 to be the power level, less than or equal to 100% rated thermal power, at which the plant may be operated to ensure that power distribution limits are satisfied. Rated thermal power is defined in T/S 1.3 to be a total reactor core heat transfer rate to the reactor coolant of 3250 megawatts thermal (MWt) for Unit 1 and 3411 MWt for Unit 2. T/S 3.2.6 requires thermal power to be less than APL and further defines APL with a formula that limits APL to the calculated value or 100% of rated thermal power, whichever is less. The action statement for T/S 3.2.6 requires that, with thermal power exceeding APL, thermal power be reduced to APL or less within 15 minutes.

C. Bases for the Current Requirements

The requirements in T/S section 3/4.2 for power distribution limits provide assurance of fuel integrity during Condition I (Normal Operation) and II (Incidents of Moderate Frequency) events by: (a) maintaining the minimum departure from nucleate boiling ratio (DNBR) in the core greater than or equal to the safety limit DNBR during normal operation and in short term transients, and (b) limiting the fission gas release, fuel pellet temperature, and cladding mechanical properties to within assumed design criteria. In addition, limiting the peak linear power density during Condition I events provides assurance that the initial conditions assumed for the loss-of-coolant accident analysis are met and the emergency core cooling system (ECCS) acceptance criterion limit of 2200°F is not exceeded.

Constant axial offset control (CAOC) operation manages core power distributions such that the T/S 3.2.2 limits on heat flux hot channel factor ($F_Q(Z)$) are not violated during normal operation and limits on the minimum DNBR are not violated during steady-state, load-follow, and anticipated transients. A comparison of the maximum measured $F_Q(Z)$ with the T/S limit determines the APL below which the $F_Q(Z)$ T/S limit can be protected by CAOC. This comparison is done by calculating APL, as defined in T/S 3.2.6.

The purpose of APL regarding power distribution limits is satisfied by maintaining thermal power below the calculated APL, which may be greater than 100%. The application of APL for determining allowed rod misalignment limits also uses calculated values of APL greater than 100%. The 100% limit was added to the Limiting Condition for Operation (LCO) for APL in 1989 with license amendments 120 and 107 to DPR-58 and DPR-74 for Units 1 and 2, respectively. However, the 100% limit on APL is not needed to satisfy power distribution or reactivity control limits, or to prevent operation of the plant above its licensed maximum power level.

D. Need for Revision of the Requirement

The APL T/S is not intended to limit power except when power distribution limitations are created by high measured values of $F_Q(Z)$. Maximum power level is already established by a condition in the operating license. Condition 2.C.(1) of DPR-58 and DPR-74 limits the steady state reactor core power level to 3250 and 3411 MWt for Units 1 and 2, respectively.

There is an inconsistency between the T/S 3.2.6 formula for APL and the rod misalignment limits in T/S 3.1.3.1. Although the formula for APL specifies that it is limited to 100%, rod misalignment limits are based on the measured APL value, which normally exceeds 100%. T/S 3.1.3.1 refers to APL values greater than or equal to 106%.

To address these concerns, the calculated APL value needs to be separated from the licensed steady state maximum power level. The 100% limit is not needed in the APL T/S because power is already limited by a condition in the operating license. The proposed changes are needed to eliminate inconsistency within the T/S.

E. Description of the Proposed Changes

I&M proposes to revise the APL definition in T/S 1.38 to remove the 100% limit and clarify the use of APL as a calculated value related to power distribution limits, rather than a limiting value for normal operations. The revised definition refers to APL as the "maximum calculated power level at which power distribution limits are satisfied." I&M also proposes to revise the formula for APL in T/S 3.2.6 to delete the term "or 100%, whichever is less."

F. Bases for the Proposed Changes

Limitations regarding fuel integrity, peak linear power density, and the ECCS acceptance criteria are not affected by the proposed changes. Core power distribution limits will not be managed differently due to the proposed changes to APL. The proposed changes would more accurately reflect the fact that the calculated APL value normally exceeds 100%. Calculated APL values greater than 100% are desired, as higher APL values indicate flatter power distribution and more available margin on $F_Q(Z)$. The proposed changes would not conflict with the bases for APL or other power distribution limits.

NUREG-1431, "Standard Technical Specifications," Revision 1, does not include a standard T/S LCO or definition for APL. The standard T/S for $F_Q(Z)$ (F_Q methodology) addresses some of the considerations that are the bases for APL, but does not address the implications on rod misalignment limits. For CNP, a T/S for APL is needed in addition to the T/S for $F_Q(Z)$.

G. Discussion of Risk

The proposed changes do not affect any accident initiators or precursors, and therefore do not increase the probability of an accident. Appropriate power distribution limits are maintained to provide assurance of fuel integrity. There is no effect on any accident analyses or safety settings. The proposed changes do not affect the ability of any safety systems to mitigate the consequences of an accident.

Therefore, there is no significant increase in risk associated with the proposed change.

H. Impact on Previous Submittals

No previous submittals affect T/S pages that are submitted in this request. If any future submittals affect these T/S pages, then I&M will coordinate changes to the pages with the Nuclear Regulatory Commission Project Manager to ensure proper T/S page control when the associated license amendment requests are approved.

ATTACHMENT 2A TO C1100-05

TECHNICAL SPECIFICATIONS PAGES
MARKED TO SHOW PROPOSED CHANGES

REVISED PAGES
UNIT 1

1-7

3/4 2-15

1.0 DEFINITIONS

MEMBER(S) OF THE PUBLIC

- 1.35 MEMBER(S) OF THE PUBLIC shall include all persons who are not occupationally associated with the plant. This category does not include employees of the utility, its contractors or its vendors. Also excluded from this category are persons who enter the site to service equipment or to make deliveries. This category does include persons who use portions of the site for recreational, occupational or other purposes not associated with the plant.

SITE BOUNDARY

- 1.36 The SITE BOUNDARY shall be that line beyond which the land is not owned, leased or otherwise controlled by the licensee.

UNRESTRICTED AREA

- 1.37 An UNRESTRICTED AREA shall be any area at or beyond the SITE BOUNDARY to which access is not controlled by the licensee for purposes of protection of individuals from exposure to radiation and radioactive materials or any area within the site boundary used for residential quarters or industrial, commercial, institutional and/or recreational purposes.

ALLOWABLE POWER LEVEL (APL)

- 1.38 ~~APL means "allowable power level"~~ ALLOWABLE POWER LEVEL (APL) which is that ~~maximum calculated~~ power level less than or equal to 100% RATED THERMAL POWER, at which the plant may be operated to ensure that power distribution limits are satisfied.

CORE OPERATING LIMITS REPORT (COLR)

- 1.39 The COLR is the unit-specific document that provides core operating limits for the current operating reload cycle. These cycle-specific core operating limits shall be determined for each reload cycle in accordance with Specification 6.9.1.11. Unit operation within these operating limits is addressed in individual specifications.

TRIP ACTUATING DEVICE OPERATIONAL TEST

- 1.40 A TRIP ACTUATING DEVICE OPERATIONAL TEST shall consist of operating the Trip Actuating Device and verifying OPERABILITY of alarm, interlock, and/or trip functions. The TRIP ACTUATING DEVICE OPERATIONAL TEST shall include adjustment, as necessary, of the Trip Actuating Device such that it actuates at the required setpoint within the required accuracy.

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.2 POWER DISTRIBUTION LIMITS

ALLOWABLE POWER LEVEL - APL

LIMITING CONDITION FOR OPERATION

3.2.6 THERMAL POWER shall be less than or equal to ALLOWABLE POWER LEVEL (APL), given by the following relationships:

$$\text{APL} = \min \text{ over } Z \text{ of } \frac{\text{CFQ} \times \text{K}(Z)}{\text{F}_Q(Z) \times \text{V}(Z) \times \text{F}_p} \times 100\%, \text{ or } 100\%, \text{ whichever is less.}$$

- o CFQ is the F_Q limit at RATED THERMAL POWER specified in the COLR for Westinghouse or Exxon fuel.
- o $F_Q(Z)$ is the measured hot channel factor including a 3% manufacturing tolerance uncertainty and a 5% measurement uncertainty.
- o $V(Z)$ is the function specified in the COLR.
- o $F_p = 1.00$ except when successive steady-state power distribution maps indicate an increase in $\max \text{ over } Z \text{ of } \frac{F_Q(Z)}{K(Z)}$ with exposure

Then either of the penalties, F_p , shall be taken:

$F_p =$ burnup dependent penalty specified in the COLR, or,

$F_p = 1.00$ provided that Surveillance Requirement 4.2.6.2 is satisfied once per 7 Effective Full

Power Days until two successive maps indicate that the $\max \text{ over } Z \text{ of } \frac{F_Q(Z)}{K(Z)}$ is not increasing.

- o The above limit is not applicable in the following core regions.
 - 1) Lower core region 0% to 10% inclusive.
 - 2) Upper core region 90% to 100% inclusive.

APPLICABILITY: MODE 1

ATTACHMENT 2B TO C1100-05

TECHNICAL SPECIFICATIONS PAGES
MARKED TO SHOW PROPOSED CHANGES

REVISED PAGES
UNIT 2

1-8

3/4 2-19

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- o CFQ is the F_Q limit at RATED THERMAL POWER specified in the COLR for Westinghouse or Exxon fuel.
- o $F_Q(Z)$ is the measured hot channel factor including a 3% manufacturing tolerance uncertainty and a 5% measurement uncertainty.
- o $V(Z)$ is the function specified in the COLR.
- o $F_P = 1.00$ except when successive steady-state power distribution maps indicate an increase in $\max \text{ over } Z \text{ of } \frac{F_Q(Z)}{K(Z)}$ with exposure.

Then either of the penalties, F_P , shall be taken:

$F_P =$ burnup dependent penalty specified in the COLR, or

$F_P = 1.00$ provided that Surveillance Requirement 4.2.6.2 is satisfied once per 7 Effective Full Power Days until two successive maps indicate that the $\max \text{ over } Z \text{ of } \frac{F_Q(Z)}{K(Z)}$ is not increasing.

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 - 2) Upper core region 90% to 100% inclusive.

APPLICABILITY: MODE 1

ATTACHMENT 3A TO C1100-05

PROPOSED TECHNICAL SPECIFICATIONS PAGES

REVISED PAGES
UNIT 1

1-7

3/4 2-15

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ATTACHMENT 3B TO C1100-05

PROPOSED TECHNICAL SPECIFICATIONS PAGES

REVISED PAGES
UNIT 2

1-8

3/4 2-19

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APPLICABILITY: MODE 1

ATTACHMENT 4 TO C1100-05

NO SIGNIFICANT HAZARDS CONSIDERATION EVALUATION

Indiana Michigan Power Company (I&M) has evaluated this proposed amendment and determined that it does not involve a significant hazard. According to 10 CFR 50.92(c), a proposed amendment to an operating license involves no significant hazards consideration if operation of the facility in accordance with the proposed amendment would not:

1. involve a significant increase in the probability of occurrence or consequences of an accident previously evaluated;
2. create the possibility of a new or different kind of accident from any previously analyzed; or
3. involve a significant reduction in a margin of safety.

Allowable Power Level (APL) is currently defined in Technical Specification (T/S) 1.38 to be the power level, less than or equal to 100% rated thermal power, at which the plant may be operated to ensure that power distribution limits are satisfied. Rated thermal power is separately defined in T/S 1.3 to be a total reactor core heat transfer rate to the reactor coolant of 3250 megawatts thermal (MWt) for Unit 1 and 3411 MWt for Unit 2. T/S 3.2.6 requires thermal power to be less than APL and further defines APL with a formula that limits APL to the calculated value or 100% of rated thermal power, whichever is less.

The proposed changes would revise T/S 3.2.6, "Allowable Power Level (APL)," and T/S 1.38, definition of APL. The proposed changes would clarify the meaning and use of APL by removing the limitation of "100% of rated thermal power, whichever is less," from the T/S 3.2.6 requirements and the T/S 1.38 definition. APL is a calculated value that establishes power distribution limits and reflects the available margin in the heat flux hot channel factor. Although values of APL are typically greater than 100% of rated thermal power, indicating available margin, plant operation would continue to be limited by the maximum power level stated in the operating licenses.

The power distribution limits are maintained by compliance with the calculated value of APL independent of the separate requirement for limiting maximum reactor power during normal operations. The overall, maximum reactor thermal power will remain limited by T/S 1.3, and the proposed T/S changes simply separate this limitation on overall reactor thermal power from the APL. APL is necessary to ensure power distribution limits are maintained within the reactor core as required by the accident analyses, and not for limiting overall reactor thermal power. This additional limitation is necessary whenever APL is calculated to be less than actual reactor thermal power.

The determination that the criteria set forth in 10 CFR 50.92 are met for this amendment request is indicated below.

1. Does the change involve a significant increase in the probability of occurrence or consequences of an accident previously evaluated?

No new accident initiators or precursors are created by the proposed T/S changes. Reactor thermal power and power distribution within the reactor core are not initiators or precursors to any previously evaluated accident. There are no physical changes to the plant associated with the proposed T/S changes that would create any new accident initiators or precursors. Therefore, the proposed T/S changes do not increase the probability of occurrence of any accident previously evaluated

Reactor thermal power up to the calculated value of APL ensures that the accident analysis results are not impacted by maintaining reactor core power distribution within prescribed limits. Since T/S 1.3 still contains a limitation on the maximum reactor thermal power allowed during normal operations, the normal overall operating limits for the reactor core are not changed. Accident analyses generally include a calorimetric error allowance of 2% or assume an initial power level of at least 102%. Using the additional limit on reactor thermal power based on APL ensures operation within the power distribution limits assumed in the accident analyses. Therefore, the proposed T/S changes do not affect operation of the reactor core and do not modify either the maximum acceptable reactor thermal power or the maximum allowed power distribution limits.

The proposed T/S changes do not change or alter the design criteria for the systems or components used to mitigate the consequences of any design basis accident. The reactor protection system (RPS), including reactor trips based upon overall reactor thermal power and power distribution within the reactor core, are not affected by the proposed T/S changes. The initial conditions of the accident analyses, including maximum reactor thermal power and worst-case power distribution within the reactor core, are not changed. As a result, the expected operation of the emergency core cooling systems (ECCS) are not affected by the proposed T/S changes. Radiological consequences of previously evaluated accidents are not increased, since overall reactor thermal power and power distribution limits are still maintained within the assumptions of the accident analyses, and operation of the RPS and ECCS is not affected. Therefore, the proposed changes do not increase the consequences of any accident and do not impact offsite dose considerations.

Therefore, the probability of occurrence or the consequences of accidents previously evaluated are not increased.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

Reactor thermal power and power distribution within the reactor core cannot be an initiator or precursor to an accident. There are no physical changes to the plant associated with the proposed T/S changes that would create any new accident initiators or precursors. The proposed T/S changes do not degrade the reliability of any existing system, structure, or component. No new failure modes, malfunctions, or system interactions are created. The maximum steady state reactor core power level as defined by T/S 1.3 is not changed. The actual power distribution limits are not changed since the calculated value of APL is not changed. Therefore, the accident analyses assumptions and results are unchanged.

Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the change involve a significant reduction in a margin of safety?

The proposed T/S changes do not change either the overall maximum reactor thermal power allowed, or the reactor core power distribution limits allowed. Maximum reactor thermal power remains limited by T/S 1.3. The calculated value of APL in T/S 3.2.6 is not changed, and remains as a control to ensure reactor core power distribution limits consistent with the accident analyses are satisfied. Therefore, safety margins related to power distribution limits are not affected. The proposed T/S changes do not affect any of the T/S safety limits or T/S limiting safety system settings, and RPS setpoints as defined by the T/S are not changed or affected.

Therefore, the proposed changes do not involve a significant reduction in a margin of safety.

In summary, based upon the above evaluation, I&M has concluded that the proposed amendment involves no significant hazards consideration.

ATTACHMENT 5 TO C1100-05

ENVIRONMENTAL ASSESSMENT

Indiana Michigan Power Company (I&M) has evaluated this license amendment request against the criteria for identification of licensing and regulatory actions requiring environmental assessment in accordance with 10 CFR 51.21. I&M has determined that this license amendment request meets the criteria for a categorical exclusion set forth in 10 CFR 51.22(c)(9). This determination is based on the fact that this change is being proposed as an amendment to a license issued pursuant to 10 CFR 50 that changes a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or that changes an inspection or a surveillance requirement, and the amendment meets the following specific criteria.

- (i) The amendment involves no significant hazards consideration.

As demonstrated in Attachment 4, this proposed amendment does not involve significant hazards consideration.

- (ii) There is no significant change in the types or significant increase in the amounts of any effluent that may be released offsite.

The proposed changes do not result in the generation of any radioactive or nonradioactive effluents and do not change established effluent release limits. There is no impact on any of the radioactive or nonradioactive effluent processing and control systems. Therefore, there will be no significant change in the types or significant increase in the amounts of any effluents released offsite.

- (iii) There is no significant increase in individual or cumulative occupational radiation exposure.

The proposed changes will not result in significant changes in the operation or configuration of the facility. There will be no change in the level of controls or methodology used for processing of radioactive effluents or handling of solid radioactive waste, nor will the proposal result in any change in the normal radiation levels within the plant. Therefore, there will be no significant increase in individual or cumulative occupational radiation exposure resulting from this change.