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WC-259-96
August 15, 1996

Docket No. 50-461

10CFR50 90

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

Subject: Clinton Power Station Proposed Amendment of
Facility Operating License No. NPF-62 (NS-96-004)

Dear Madam or Sir:

Pursuant to 10CFR50.90, Illinois Power (IP) hereby applies for amendment of Facility Operating License No. NPF-62, Appendix A - Technical Specifications, for Clinton Power Station (CPS). This request consists of a change to the Technical Specifications to incorporate the revised Safety Limit Minimum Critical Power Ratio (SLMCPR) as calculated by General Electric (GE) for CPS Cycle 7. The need to change the SLMCPR resulted from the 10CFR Part 21 condition reported by GE in their letter to the NRC dated May 24, 1996.

A description of the proposed change and the associated justification (including a Basis For No Significant Hazards Consideration) are provided in Attachment 2. A marked-up copy of the affected page from the current Technical Specifications is provided in Attachment 3. Further, an affidavit supporting the facts set forth in this letter and its attachments is provided in Attachment 1.

This proposed amendment is required to support startup from the sixth refueling outage currently scheduled to start on October 13, 1996. As such, IP respectfully requests review and approval of this amendment in a timeframe that supports that requirement.

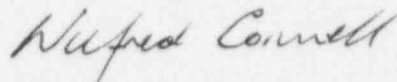
IP has reviewed the proposed changes against the criteria of 10CFR51.22 for categorical exclusion from environmental impact considerations. The proposed change does not involve a significant hazards consideration, or significantly increase individual or

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cumulative occupational radiation exposures. Based on the foregoing, IP concludes that the proposed changes meet the criteria given in 10CFR51.22(c)(9) for a categorical exclusion from the requirement for an Environmental Impact Statement.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Wilfred Connell".

Wilfred Connell
Vice President

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Attachments

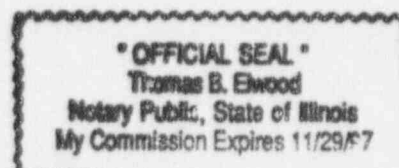
cc: NRC Clinton Licensing Project Manager
NRC Resident Office, V-690
Regional Administrator, Region III, USNRC
Illinois Department of Nuclear Safety

Wilfred Connell, being first duly sworn, deposes and says: That he is Vice President of Illinois Power; that the application for amendment of Facility Operating License NPF-62 has been prepared under his supervision and direction; that he knows the contents thereof, and that to the best of his knowledge and belief said letter and the facts contained therein are true and correct.

Date: This 15th day of August 1996.

Signed: Wilfred Connell
Wilfred Connell

STATE OF ILLINOIS }
 }
DEWITT COUNTY }



Subscribed and sworn to before me this 15th day of August 1996.

Thomas B. Elwood
(Notary Public)

Background

On March 27, 1996, General Electric (GE) notified the NRC that the Safety Limit Minimum Critical Power Ratio (SLMCPR) generically calculated in accordance with the General Electric Standard Application for Reactor Fuel (GESTAR II) may be non-conservative when applied to some actual core and fuel designs. After meeting with the NRC, and in accordance with commitments made to the NRC, GE performed SLMCPR evaluations for all plants utilizing GE fuel and informed the affected plants of the results. The affected plants were then instructed to establish administrative controls to ensure conformance with the revised safety limit. Further review of this issue by GE resulted in the determination that this constituted a reportable condition per 10CFR Part 21, as documented in the May 24, 1996 letter from GE to the NRC.

The SLMCPR is a specified acceptable fuel design limit as defined by General Design Criterion 10 of 10CFR50 Appendix A. The SLMCPR is applied to ensure fuel cladding integrity is not lost as a result of over-heating. The SLMCPR defines the minimum allowable critical power ratio (CPR) at which 99.9 percent of the fuel rods in the core are expected to avoid boiling transition during the most limiting anticipated operational occurrence (AOO).

The SLMCPR is determined for each fuel design under the conditions specified by NEDE-24011-P-A-11, "GESTAR II," November 17, 1995, using the calculational methodology defined in NEDO-10958-A, "General Electric BWR Thermal Analysis Basis (GETAB) Data, Correlation, and Application," January 1977. Statistical analyses are performed which provide SLMCPR values applicable for each GE fuel (product line) design. The statistical procedure, when combined with the conditions set forth in Section 1 of GESTAR II, incorporates conservatism as a mechanism to ensure that the statistical analysis is generically applicable to the range of BWR/2-6 initial and reload core cycles. This overall approach formerly yielded a "generic" SLMCPR (for each of several plant/core designs) that was not likely to change from cycle to cycle. As noted above, however, GE has now confirmed that the SLMCPR calculated on a generic basis with this GE methodology may be non-conservative when applied to some actual core and fuel designs.

The identified condition has prompted GE to revise its methodology for determining the SLMCPR for licensees such that the SLMCPR will now be more plant- and cycle-specific. For the current operating cycle at CPS (i.e., Cycle 6), GE provided Illinois Power (IP) with calculated values of 1.08 for middle-of-cycle conditions and 1.07 for end-of-cycle (EOC) conditions, respectively. (1.07 is the value currently specified in the CPS Technical Specifications.) Since, at the time these values were provided, the actual CPS cycle exposure was very close to the EOC conditions assumed in the analysis, GE stated that the EOC value of 1.07 could be justified and no Technical Specification changes for the current cycle were required.

Recently, however, GE completed analyses for the next operating cycle at CPS (i.e., Cycle 7), and it has been determined that the SLMCPR will increase by 0.02 from the value currently specified in the CPS Technical Specifications. As a result, it is necessary to revise the CPS Technical Specifications to reflect the new SLMCPR before starting up the plant for Cycle 7.

Description of Proposed Change

In accordance with 10CFR50.90, IP proposes to amend its Operating License to incorporate revised SLMCPR values specified in the Technical Specifications for normal (two) reactor recirculation loop operation as well as for single recirculation loop operation. The following change to the CPS Technical Specifications (TS) is therefore proposed:

Change TS 2.1.1.2 to read "MCPR shall be ≥ 1.09 for two recirculation loop operation or ≥ 1.10 for single recirculation loop operation."

The proposed TS change is reflected on the marked-up copy of the affected page from the CPS TS in Attachment 3.

Justification for Proposed Change

As stated previously, the SLMCPR is developed to assure compliance with General Design Criterion 10 of 10CFR50 Appendix A. The Bases to TS 2.1.1.2 state that "the fuel cladding integrity SL is defined as the critical power ratio in the limiting fuel assembly for which more than 99.9% of the fuel rods in the core are expected to avoid boiling transition, considering the power distribution in the core and all uncertainties." The new SLMCPR was developed with consideration of all the appropriate uncertainties and with considerable conservatism in the methodology.

The CPS Cycle 7 SLMCPR calculation was completed on a CPS-specific basis as opposed to the generic approach used previously. The methodology used was identical to the generic evaluation except the following plant/cycle-specific data were used:

- Actual core loadings
- Projected control blade patterns
- Actual exposure-dependent rod powers for R-factor distributions
- Calculations made for several points in the cycle

As noted previously, it has been determined that the (former) generic SLMCPR may not be conservative when applied to some actual core and fuel designs. The above-noted CPS analysis, however, explicitly calculates the SLMCPR for the CPS Cycle 7 core design and does not credit the generic analyses. Therefore, this analysis is not affected by the current issues concerning the applicability of the generic SLMCPR values.

Basis for No Significant Hazards Determination

In accordance with 10CFR50.92, a proposed change to the Operating License (Technical Specifications) involves no significant hazards considerations if operation of the facility in accordance with the proposed change 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 proposed change is evaluated against each of these criteria below.

- (1) This change does not involve a significant increase in the probability or consequences of any accident previously evaluated. In lieu of utilizing a potentially nonconservative generic value, this change revises the SLMCPR to be appropriately conservative as it has been specifically calculated on a plant- and cycle-specific basis. Although the SLMCPR does not apply (i.e., is not assumed or required to be met) during any analyzed accident, the MCPR fuel cladding Safety Limit ensures that during normal operation and during AOOs, at least 99.9% of the fuel rods in the core do not experience transition boiling. The revised value for the SLMCPR is determined using the same methodology as the previous SLMCPR with the exception that it utilizes plant specific conditions to determine the safety limit. The revised SLMCPR, therefore, accounts for actual expected power distributions in the CPS core as well as CPS-specific uncertainties. This provides a more conservative SLMCPR than the generic value used previously.

The proposed change does not affect any of the parameters or conditions that contribute to initiation of any accidents previously evaluated. In addition, the proposed change does not affect the ability of any plant systems or equipment to operate as assumed in the safety analyses. The revised SLMCPR will continue to ensure that the fuel cladding integrity is not lost as a result of over-heating during normal plant operation or any AOO. As a result, the proposed change will not result in a significant increase in the consequences of any accident previously evaluated.

- (2) The proposed change does not involve any new modes of operation, any changes to setpoints, or any plant modifications. Further, the incorporation of a revised MCPR safety limit, which has been determined to be acceptable for CPS Cycle 7

operation, does not result in the creation of any new failure modes or potential precursors to an accident. Therefore, the proposed change does not create the possibility of a new or different type of accident from any accident previously evaluated.

- (3) The proposed SLMCPR has been evaluated to ensure that during normal operation and during AOOs, at least 99.9% of the fuel rods in the core do not experience transition boiling. As noted above, the revised SLMCPR has been determined using the same methodology as used previously with the exception of using CPS Cycle-7 specific core and fuel design data. This change ensures that the margin of safety for fuel cladding integrity is maintained by providing a CPS-specific MCPR safety limit as opposed to utilizing a potentially less conservative generic limit. Therefore, the implementation of the proposed change to the SLMCPR does not involve a significant reduction in the margin of safety.

Based on the foregoing, IP concludes that this request does not involve a significant hazards consideration.