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Subject: Correction/Update Regarding Previously Provided Information in Application for Temporary Partial Exemption from General Design Criterion 17 of 10CFR50 Appendix A and Amendment of Facility Operating License for Clinton Power Station

- References:
- (1) IP Letter U-602796, "Application for Temporary Partial Exemption from 10CFR50 Appendix A General Design Criterion 17 and Amendment of Facility Operating License No. NPF-62 for Clinton Power Station (LS-97-004)," dated July 22, 1997
  - (2) IP Letter U-602798, "Response to NRC Questions Regarding Illinois Power Application for Temporary Partial Exemption and License Amendment, dated July 22, 1997," dated July 23, 1997
  - (3) IP Letter U-602804, "Response to Request for Additional Information to Support Review of Application for Temporary Partial Exemption from 10CFR50 Appendix A General Design Criterion 17 and Amendment of Facility Operating License No. NPF-62 for Clinton Power Station," dated August 1, 1997

Dear Madam or Sir:

By letter dated July 22, 1997 (Reference 1 above) Illinois Power (IP) requested amendment of the Clinton Power Station (CPS) Operating License, in conjunction with an exemption from certain requirements of General Design Criterion (GDC) 17 of 10CFR50 Appendix A. The request was prompted by the determination that, for intermittent periods of time during the current summer, voltage on one of the two required offsite electrical power sources for CPS may not be able to be maintained above the minimum required value established for CPS. The requested exemption / license amendment would permit plant startup and continued operation with one offsite circuit experiencing intermittent periods of less-than-adequate voltage, effective through and including October 15, 1997.

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In IP's request and in the supporting followup letters (References 2 and 3 above) IP provided information related to the performance of the 345-kV offsite circuit and the 138-kV offsite circuit based, in part, on monitoring of the offsite circuit voltages during the current summer with the plant in a shutdown condition (for the current refueling outage). IP also described the fact that since offsite circuit voltages will be supported to higher levels upon resumption of plant operation from the current outage, a predictor model will be utilized during plant operation to determine when grid/transmission conditions are such that offsite voltage may be inadequate in the event of a plant trip. At the time of IP's submittal, validation of the model and finalization of the procedure changes needed to implement the model were still ongoing, as such activities were identified as restraints to plant startup.

Recently however, during completion of the activities to support implementation of the predictor model, a small but notable nonconservatism was identified in the criterion that was used to determine the acceptability of 138-kV system voltage during the recent monitoring period with the plant shut down. This nonconservatism does not significantly impact IP's request. Nevertheless, IP is submitting this followup letter to inform the NRC of this nonconservatism and to provide an assessment of its impact on IP's request, including the information provided in previous correspondence for the request, with regard to the availability of the 138-kV circuit. Details are provided in the attachment to this letter.

Sincerely yours,



Wayne D. Romberg  
Assistant Vice President

TBE/emm

Attachment

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

## **Identification and Effect of Voltage Drop Across The 138-kV Transmission Line from Bloomington to Clinton Power Station (CPS)**

### Background/Identification of Nonconservatism

During review of the new transmission voltage "predictor" model developed for CPS by IP's Electrical Supply group, it was noted that the voltage drop in the transmission line from Bloomington to the primary side of the Emergency Reserve Auxiliary Transformer (ERAT) at CPS had not been considered in the value incorporated into plant procedures for monitoring and maintaining the acceptable level of 138-kV system voltage. In IP letters U-602796 and U602798 (References 1 and 2 in the cover letter), IP noted that it has been monitoring offsite circuit voltage since the latter part of June, and that for the period of time from June 25 to July 20 (1997) the 138-kV system voltage remained above the minimum required level throughout the entire period. IP's assessment of the 138-kV system voltage for that monitoring period was based on the previously established minimum acceptable level. Consequently, IP's discovery of the noted nonconservatism called into question the assessment provided in the noted letters. In response to this concern, the following review and updated assessment is provided.

### Review

Calculation of the minimum 138-kV system voltage required for CPS necessitated that the value be determined at the site, i.e., at the primary side of the ERAT. However, a direct reading of the 138-kV system voltage cannot be obtained from the ERAT (as there is no instrumentation provided at this point). The nearest point it can be read from is the South Bloomington substation which is located approximately 28 miles from CPS. For the length of transmission line between Bloomington and CPS there is a small but notable voltage drop, the magnitude of which is largely dependent on the CPS plant loads. Calculations show that the magnitude of the voltage drop for worst-case conditions is approximately three kilovolts. As noted above, this voltage drop had not been previously taken into consideration, therefore a review was performed to evaluate the effect of the voltage drop relative to the voltage data previously evaluated for the noted monitoring period by applying a new minimum value calculated using the predictor model to account for the load-dependent voltage drop and offsite system conditions.

For the noted monitoring period (June 25 through July 20, 1997), review of the recorded minimum values of voltage at Bloomington (taking the voltage drop into account) determined that voltage was maintained above the new, more conservative minimum value for all but four days. The longest period of time that voltage was less than minimum required value (i.e., for the worst of the four days) was approximately 3 hours. For each incident however, IP has determined that minimal or relatively simple actions could have been taken (e.g., removing an onsite auxiliary steam electrode boiler from service) to restore voltage to greater than the new minimum required level. Therefore, IP has

concluded that if the new, more conservative voltage criterion had been in place at that time, the result (that 138-kV voltage would have remained above the required minimum for the entire period) would have been the same.

In addition to the noted monitoring period, data for the period from July 20 to August 5 (excluding four days for which insufficient data was available) was also reviewed. Review of this time period confirmed that there was only one occurrence when 138-kV voltage was less than the new, required minimum. This was due to a momentary drop in voltage that occurred due to a trip of the Kincaid Power Station during peak system load. Actions taken by IP's Electrical Supply center (which involved a relatively simple switching operation / system reconfiguration) restored voltage to above the new, more-conservative level within approximately 20 minutes. This event demonstrated how quickly voltage can be recovered for such transient events.

#### Assessment

In summary, identification and correction of the noted nonconservatism does not adversely impact the intent and acceptability of IP's request. That is, the information and assessment provided in IP's previous correspondence regarding the availability (i.e., the capacity and capability) of the 138-kV system remains valid, and the above review demonstrates that to the same degree as before, IP's Electrical Supply center will be able to maintain 138-kV system voltage within acceptable limits based on the new, more conservative criterion.