February 21, 2002

Mr. A. Christopher Bakken III, Senior Vice President
and Chief Nuclear Officer
Indiana Michigan Power Company
Nuclear Generation Group
500 Circle Drive
Buchanan, MI 49107

SUBJECT: DONALD C. COOK NUCLEAR PLANT, UNITS 1 AND 2 - REQUEST FOR ADDITIONAL INFORMATION, "LICENSE AMENDMENT REQUEST ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS" (TAC NOS. MB3499)

Dear Mr. Bakken:

By application dated November 16, 2001, Indiana Michigan Power Company submitted a license amendment request that would revise the Operating Licenses for the Donald C. Cook Nuclear Plant, Unit 1, to engineered safety feature actuation system instrumentation trip setpoints.

The Nuclear Regulatory Commission (NRC) staff has reviewed your request and concluded that it does not provide technical information in sufficient detail to enable the staff to make an independent assessment regarding the acceptability of the proposal in terms of regulatory requirements and the protection of public health and safety.

Draft questions were discussed with Mr. R. Vasseys, et al., of your staff on February 1, 2002. A mutually agreeable target date of March 12, 2002, for your response was established. The NRC staff will continue review of your amendment application when your response to the enclosed questions is received.

If circumstances result in the need to revise the target date, please contact me at (301) 415-1345 at the earliest opportunity.

Sincerely,

/RA/

John F. Stang, Senior Project Manager, Section 1
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-315 and 50-316

Enclosure: Request for Additional Information

cc w/encl: See next page

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Project Directorate III
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Enclosure: Request for Additional Information

cc w/encl: See next page
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REQUEST FOR ADDITIONAL INFORMATION

DONALD C. COOK NUCLEAR PLANT, UNITS 1 AND 2

SUBMITTAL C1101-03 4kV BUS UNDERVOLTAGE SETPOINT

DATED NOVEMBER 16, 2001

1. The existing degraded voltage and loss of voltage setpoints were based upon an electrical auxiliary bus voltage analysis that considered the auxiliary system loading for the operating period from 1985-1990. The subject analysis which were based upon a nominal bus voltage of 4000 volts indicated a minimum steady state bus voltage and minimum transient bus voltage of 3708 volts and 3492 volts respectively. The existing minimum degraded voltage and loss of voltage allowable values are 3578 volts and 3160 volts respectively. The proposed degraded voltage setpoint is based upon an analytical limit, that is, the voltage value at which all safety-related loads have sufficient voltage to perform their intended safety function, has been determined to be 3902 volts. Please state the analytical limits for the degraded voltage and loss of voltage functions prior to the planned design change to increase the reliability of the offsite power system, the analytical limit for the loss of voltage function after the subject design change, and explain, how the subject design change (i.e., replacement of the existing 4 kV offsite power transformers with auto-load tap changing type transformers and replacement of the loss of voltage and degraded voltage relays with relays of an improved design) affected the subject analytical limits.

2. The D.C. Cook plant design has safety-buses feeding a mixture of safety-related and important non-safety related loads because the original designers of the plant considered the powering of important non-safety-related loads from the emergency buses as a needed design feature. A loss of offsite power results in the shedding of all of the 4 kV loads, both safety and non-safety loads, with the exception of some permanently connected loads. The 4 kV safety buses consist of two redundant and independent trains, each supplied from its own emergency diesel generator (EDG). After the EDGs have started and have assumed the unshed loads, the remaining required safety loads are automatically sequenced back onto the safety buses. Load shedding of the non-safety loads is required because the EDGs cannot start or carry all of the loads that are normally on the safety buses. The existing degraded voltage trip setpoint includes a 2.0 minute time delay which is long enough to prevent disconnecting the offsite power source due to short, inconsequential grid disturbances, yet short enough to prevent failures of the safety-related equipment due to running with inadequate voltages.

   The subject amendment proposes to change the existing 2.0 minute time delay to a 9 second time delay degraded voltage only when a safety injection signal or steam generator low-low level signal is present for the degraded voltage function. A longer time delay will apply when neither a steam generator low-low level signal or safety injection signal will be included in an owner-controlled document instead of the technical specifications. Please identify the longer time delay(s) to be included in the subject owner-controlled document and the associated control logic sequences and

discuss whether the concerns stated in Nuclear Regulatory Commission (NRC) Information Notice 93-17, "Safety Systems Response to Loss of Coolant and Loss of Offsite Power," has been addressed by the subject design change.

3. Please confirm that any time delay associated with the voltage changes by the new auto-load tap changing offsite power transformer has been considered in the proposed 9 second time delay determination to address the safety analysis assumptions in Chapter 14 of the updated final safety analysis report.

4. The subject amendment cites NRC Branch Technical Position (BTP) PSB-1, "Adequacy of Station Electric Distribution System Voltages," as a basis for not including in the technical specifications time delays related to safety analyses. However, the Safety Evaluation for Amendment No. 137 to Facility Operating License No. DPR-58 which established the existing degraded voltage trip setpoints and allowable values noted "...that the degraded grid protection are in force only when the safety buses are powered from the offsite source and are not acting during normal operation. This is not in conformance with the Standard Review Plan, Chapter, Appendix 8A, BTP PSB #1. Therefore, in order to have added protection for safety buses from degraded voltage conditions, the staff recommends that these degraded grid voltage relays remain in force regardless of the power sources connected to the safety buses; i.e., whether powered from the unit auxiliary transformer or the offsite power system." Please update the record whether the proposed design change will meet BTP PSB-1, specifically for:

   a. The voltage levels at the safety-related buses should be optimized for the maximum and minimum load conditions that are expected throughout the anticipated range of voltage variations of the offsite power sources given the range of the new auto-load tap changing transformers (B.3 of PSB-1), and

   b. The analytical techniques and assumptions used in the voltage analyses cited in item 3 must be verified by actual measurement (B.4 of PSB-1).

5. Included: Clarify that all onsite distribution levels include 120/208 volt levels.

6. Provide details of the auxiliary bus voltage analysis (specifically, assumptions, loading and summary of results.)

7. A longer time delay will apply when neither a steam generator low-low level nor a safety injection signal is present, but it is not included in the TS. The longer time delay is allowed in order to restore adequate voltages. Describe the procedure, including any changes in degraded voltage setting, used to restore adequate voltages.

8. The criteria used to determine the set points for the following:

   - Preventing running Class 1E motors from stalling.
   - Ensuring any load can be started without damaging any loads that are already running.
   - Preventing load shedding due to thermal overload/relaying.

   Describe how these criteria are met in voltage response analysis.