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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

March 6, 1981


Docket No. 50-298

Mr. J. M. Pilant
Licensing and Quality Assurance
Nebraska Public Power District
P. O. Box 499
Columbus, Nebraska 68501

Dear Mr. Pilant:

Your letter of December 27, 1979 submitted a voltage drop analyses for Cooper Nuclear Station as requested in our letter of August 8, 1979.

The staff has reviewed your submittal and determined that additional information is required before our review of the adequacy of your system can be completed. Enclosure 1 contains seven additional questions which you are requested to respond to within 45 days of receipt of this letter.

Sincerely,

Thomas A. Ippolito, Chief
Operating Reactors Branch #2
Division of Licensing

Enclosure:
Request for Additional
Information



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cc:

Mr. G. D. Watson, General Counsel
Nebraska Public Power District
P. O. Box 499
Columbus, Nebraska 68601

Mr. Arthur C. Gehr, Attorney
Snell & Wilmer
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Cooper Nuclear Station
ATTN: Mr. L. Lessor
Station Superintendent
P. O. Box 98
Brownville, Nebraska 68321

Auburn Public Library
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Auburn, Nebraska 68305

Mr. Dennis Dubois
USNRC
Resident Inspector
P. O. Box 446
Nebraska City, NA 68410

ENCLOSURE 1

REQUEST FOR ADDITIONAL INFORMATION

COOPER

ADEQUACY OF STATION ELECTRIC DISTRIBUTION SYSTEM VOLTAGES

Reference 1: NRC letter (W. Gammill) to all Power Reactor Licensees, dated August 8, 1979.

Reference 2: Nebraska Public Power District letter (J. Pilant) to the NRC (D. Davis), dated July 18, 1977.

Reference 3: Nebraska Public Power District letter (J. Pilant) to the NRC (W. Gammill), dated December 27, 1979.

Reference 4: Nebraska Public Power District letter (J. Pilant) to the NRC (W. Gammill), dated August 11, 1980.

1. Submit the following voltage ratings for the Class 1E motor starter contactors.
   a) Continuous operating voltage range
   b) Minimum pickup voltage
   c) Maximum dropout voltage

2. Submit the calculated voltages for all low-voltage AC (less than 480 volts) Class 1E buses or documentation which will verify that all low-voltage AC Class 1E equipment will be operating within their required voltage ratings for each case analyzed. Do these buses supply any instruments or control circuits required by GDC-13? If so, is all equipment capable of sustaining the analyzed voltages without blowing fuses, overheating, etc., and without affecting the equipment's ability to perform the required safety function?

3. Ref. 4 details the voltage test performed on the electrical distribution system. Input the measured bus voltages and bus loading values (from the test) into the computer program, recalculate equipment voltages and compare actual measured equipment values to the calculated values. This comparison will produce a percent error difference in the voltages. The purpose of the percent error is to verify the validity of the computer load flow program. Submit the measured values, calculated values, percent error difference and identify the bus load percentage.

4. Ref. 2, attachment 1, page 198 states that removing the isolated phase bus quick disconnect links will enable backfeeding through the main transformer and unit auxiliary transformer to the onsite distribution system. If credit is not taken for backfeeding as a possible source connection from the grid in an existing limiting condition of operation, then an analysis is not required.

5. Does Case 5, Ref. 3 represent the worst case maximum Class 1E load terminal voltages for maximum offsite grid voltage and minimum plant load conditions (Guideline 11, Ref. 1)? If not, submit the worst case maximum Class 1E load terminal voltages of all possible source connections.

6. Per Guideline 3, Ref. 1, provide an analysis of the effect on all Class 1E equipment when starting and running the largest non-Class 1E load after loading the Class 1E buses heavily during a LOCA for all possible source connections. The submitted analysis for the worst case voltage condition should include Class 1E load terminal voltages before, during and after starting the large nonClass 1E motor. The analysis should also confirm that the second-level of undervoltage voltage protection relays will not dropout during these loading conditions.

7. Clarify the following items in the computer program printouts:
   a) Does the steady state voltage drop results represent the worst case minimum steady state bus voltages reached for the conditions analyzed?

   b) In the voltage drop results due to motor starting, is each subcase motor started and loaded onto the bus and running before the next subcase motor is started and loaded onto the bus (loading sequencing)? The analysis should show that the last Class 1E motor to be loaded onto the bus can start and operate within its ratings while all other Class 1E loads are running.