



Commonwealth Edison
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June 26, 1980

Mr. Darrell G. Eisenhut, Director
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: Dresden Station Units 1, 2, and 3
Quad Cities Station Units 1 and 2
Zion Station Units 1 and 2
Second Level of Undervoltage
Protection for 4KV Onsite Emergency Power
Systems
NRC Docket Nos. 50-20/237/249,
50-254/265, and 50-295/304

- References (a): A. Schwencer letter to R. L. Bolger
dated June 3, 1977
- (b): D. K. Davis letter to R. L. Bolger dated
June 3, 1977
- (c): R. L. Bolger letter to K. R. Goller dated
July 27, 1977
- (d): A. Schwencer letter to C. Reed dated
August 6, 1979
- (e): R. F. Janecek letter to W. Gammill dated
October 9, 1979

Dear Mr. Eisenhut:

References (a) and (b) requested information concerning a second level of undervoltage protection for the 4KV emergency power buses supplying safety related loads at Dresden, Quad Cities, and Zion Stations.

Reference (c) provided our response to those requests. This letter provided a site specific probability analysis of the CECO. transmission system voltage levels from various system conditions and contingencies. It was found that the system voltage conditions were such that the probability of the system voltages degrading to a level which would cause equipment failures were in the range of 10^{-7} to 10^{-15} . Operating experience on the Edison

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Mr. Darrell G. Eisenhut, Director
June 26, 1980
Page 2

system confirms the accuracy and conservatism of these system voltage calculations.

In Reference (d) concerning Zion Station, the NRC Staff stated that the CECo. probability analysis of system voltages in lieu of installing a second level of undervoltage relaying was unacceptable. The reason that the analysis was unacceptable was not stated.

In a telecon with the Staff on September 17, 1979, the reason for not accepting the CECo. analysis was discussed. It was stated that the Staff did not have adequate information concerning the basis of the CECo. analysis for the Staff to make a judgment. CECo. subsequently, in Reference (e), provided additional information on the bases upon which the probability analysis was made. There has been no written or oral response to this submittal as of the date of this letter.

In a telecon on May 22, 1980, however, the NRC Staff reviewing Dresden and Quad Cities informed CECo. that the information provided in Reference (c) was unacceptable. It was stated that the Staff was not accepting probabilistic analyses of any kind on the subject system undervoltage. The Staff then insisted that CECo. respond directly to the Positions stated in their June 3, 1977 letter.

Although we believe this position concerning probabilistic analyses is inconsistent with past and current NRC practices, we have revised the CECo. responses to the Positions presented in the References (a) and (b), for Dresden Units 1, 2, and 3, Quad Cities Units 1 and 2, and Zion Units 1 and 2, as follows.

Position 1

Provide a second level of under-or-overvoltage protection with a time delay.

Response

Two undervoltage solid-state relays will be installed on each 4KV Emergency Power bus. The relays will be connected to the existing potential transformers on the bus.

The undervoltage relays will be connected between A and B, and B and C phases to meet the coincidence logic.

The voltage and time setpoints will be determined from an analysis of the voltage requirement of the safety related loads and actual field measurement of bus voltages under various motor starting conditions.

Mr. Darrell G. Eisenhut, Director
June 26, 1980
Page 3

Whenever the voltage setpoint has been reached and the time delay limits exceeded, the voltage relay will initiate the following functions:

1. Automatically disconnect the emergency power bus from the offsite power sources.
2. Start the diesel generator.
3. Initiate a load shedding program.

Appropriate Technical Specifications covering the second level of undervoltage relaying will be submitted to coordinate with the relay installation.

Position 2

Interaction of onsite power sources with load shed feature.

Response

The circuit will be designed to prevent automatic load shedding of the emergency power buses once the onsite sources are supplying power to all sequenced loads on the buses. The load shed interlock feature will be with the "b" contact of the respective diesel generator breaker. This interlock will defeat the load shedding feature while the loads are being fed from the onsite power source. The load shed feature will be reinstated when the diesel generator breaker is open and the loads are fed from the offsite source.

Position 3

Onsite power source testing.

Response

Onsite power source testing is covered in the letter to K. R. Goller from R. L. Bolger dated July 7, 1977.

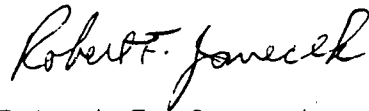
The proposed modifications identified in the responses to Positions 1 and 2 above will be installed during the first scheduled unit outage after the delivery of the required equipment to the site.

Mr. Darrell G. Eisenhut, Director
June 26, 1980
Page 4

Please address any questions concerning this matter to this office.

One (1) signed original and seventy-nine (79) copies of this transmittal are provided for your use.

Very truly yours,

A handwritten signature in cursive script, reading "Robert F. Janecek".

Robert F. Janecek
Nuclear Licensing Administrator
Boiling Water Reactors

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