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

MAY 2 1980

Docket Nos. 50-295
and 50-304

Mr. D. Louis Peoples
Director of Nuclear Licensing
Commonwealth Edison Company
Post Office Box 767
Chicago, Illinois 60690

Dear Mr. Peoples:

We are reviewing your responses of November 1, and December 14, 1979 relating to our generic concern "B-45 Adequacy of Station Electric Distribution System Voltages." Your response was in reply to our letter to all reactor licensees dated August 8, 1979.

In order for our review to continue, you are requested to provide the additional information shown on the enclosure within 45 days of receipt of this letter.

Sincerely,

Steven A. Varga, Chief
Operating Reactors Branch #1
Division of Licensing

Enclosure:
Questions

cc: w/enclosure
See next page

THIS DOCUMENT CONTAINS
POOR QUALITY PAGES

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Mr. D. Louis Peoples
Commonwealth Edison Company

cc: Robert J. Vollen, Esquire
109 North Dearborn Street
Chicago, Illinois 60602

Dr. Cecil Lue-Hing
Director of Research and Development
Metropolitan Sanitary District
of Greater Chicago
100 East Erie Street
Chicago, Illinois 60611

Zion-Benton Public Library District
2600 Emmaus Avenue
Zion, Illinois 60099

Mr. Phillip P. Steptoe
Isham, Lincoln and Beale
Counselors at Law
One First National Plaza
42nd Floor
Chicago, Illinois 60603

Susan N. Sekuler, Esquire
Assistant Attorney General
Environmental Control Division
188 West Randolph Street, Suite 2315
Chicago, Illinois 60601

U. S. Nuclear Regulatory Commission
Resident Inspectors Office
Post Office Box 288
Deerfield, Illinois 60015

ZION 1 AND 2 (DOCKET NOS. 50-295 AND 50-304)

QUESTIONS ON ADEQUACY OF STATION ELECTRIC
DISTRIBUTION SYSTEM VOLTAGESReferences:

- a. CECO letter (Janecek) to NRC (Gammill), "Adequacy of Station Electric Distribution System Voltages," dated February 1, 1980.
- b. NRC generic letter to all Power Reactor Licensees, "Adequacy of Station Electric Distribution System Voltage," dated August 8, 1979.
- c. "Adequacy of Station Electrical Distribution Systems Voltages, Dresden Unit 1," Sargent & Lundy Engineers report, attachment A to reference a.
- d. CECO letter (Janecek) to NRC (Gammill), "Adequacy of Station Electric Distribution System Voltage," dated November 1, 1979.
- e. "Adequacy of Station Electrical Distribution Systems Voltages," Dresden Units 2/3," Sargent & Lundy Engineers report, enclosure 1 of reference d.
- f. "Adequacy of Station Electrical Distribution Systems Voltages," Quad-Cities," Sargent & Lundy Engineers report, enclosure 2 of reference d.
- g. "Adequacy of Station Electrical Distribution Systems Voltages," Zion," Sargent & Lundy Engineers report, enclosure 3 of reference d.
- h. CECO letter (Janecek) to NRC (Gammill), "Adequacy of Station Electric Distribution System Voltages," dated December 14, 1979.

Questions:

1. The CECo summary attachment^a (last paragraph) concludes that the computer program results need not be compared to test results for Dresden 1. While the Zion program and input parameters were verified by test, it is not known that the input parameters for Dresden 1 (or other units) can be verified by test. CECo should verify the program, input variables, and constants used for the Dresden and Quad-Cities analyses per the requirements of reference b, page 2, paragraph 3.
2. Were the grid voltage values, 34.8 to 36.3 kV (item II, page 1)^c, 132 to 142 kV (item II, page 1)^e, 344 to 362 kV (item II, page 1)^e, 333 to 354 kV (item II, page 1)^f, and 343 to 354 kV (item II, page 1)^g determined per NRC guideline 6? If not, describe how they were obtained.
3. Supply the calculated voltages for all low voltage AC (less than 480 V) class 1E buses for each analyzed case. Do these systems supply any instruments and control circuits as required by GDC 13? If so, is all equipment capable of sustaining the analyzed voltages (blowing fuses, overheating, etc.)? Is the connected equipment qualified by the manufacturers to withstand the expected voltages without affecting their ability to perform the required function?
4. Figure 3^{c,e,f,g} shows the lowest bus voltage when starting the largest non-class 1E load for the respective plants. Did this motor start when all the other loads were running? Give the effect of starting this load on all class 1E buses and loads per NRC guideline 3^b. What are the bus and load voltages when starting the largest 480 V class 1E load when all other class 1E loads are running?
5. Define how the acronyms SAT and RAT are used. It appears, from references e, f, and g, that they might be used interchangeably. The summary refers to SAT, while the detail review and figures refer to RAT on all units except Dresden 1.

6. Is it possible that the unit's UAT can supply the class 1E load group while the main generator is disconnected? If nothing prohibits such a connection to the offsite grid, this analysis should be performed per NRC guideline b.

For Multi-Unit Plants:

7. Each SAT is capable of supplying its own unit's auxiliary load and the emergency load of the other unit (see the summary^{e,f,g}). NRC guideline 2 requires the voltage study for the largest load demand including when one unit is in LOCA and the other unit is in safe shutdown. The intertie between buses 24-1 and 34-1 (Dresden)^e, 14-1 and 24-1 (Quad-Cities)^f, and a similar arrangement for Zion (bus numbers are unreadable in the report)^g demand this voltage analysis.