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

June 25, 1980

Docket No. 50-336

Mr. W. G. Counsil, Vice President
Nuclear Engineering & Operations
Northeast Nuclear Energy Company
P.O. Box 270
Hartford, Connecticut 06101

Dear Mr. Counsil:

In the process of reviewing your November 15, 1979 response to our letter of August 8, 1979 on the adequacy of station electric distribution system voltages, we find that additional information as detailed in the enclosure is needed to complete our review. We request that this additional information be provided within 60 days from the receipt of this letter.

Sincerely,

Thomas M. Novak, Assistant Director
for Operating Reactors
Division of Licensing

Enclosure:
As stated

cc w/enclosure:
See next page

Northeast Nuclear Energy Company

cc:
William H. Cuddy, Esquire
Day, Berry & Howard
Counselors at Law
One Constitution Plaza
Hartford, Connecticut 06103

Anthony Z. Roisman
Natural Resources Defense Council
917 15th Street, N.W.
Washington, D.C. 20005

Mr. Lawrence Bettencourt. First Selectman
Town of Waterford
Hall of Records - 200 Boston Post Road
Waterford, Connecticut 06385

Northeast Nuclear Energy Company
ATTN: Superintendent
Millstone Plant
Post Office Box 128
Waterford, Connecticut 06385

Director, Technical Assessment
Division
Office of Radiation Programs
(AW-459)
U. S. Environmental Protection Agency
Crystal Mall #2
Arlington, Virginia 20460

U. S. Environmental Protection Agency
Region I Office
ATTN: EIS COORDINATOR
John F. Kennedy Federal Building
Boston, Massachusetts 02203

Waterford Public Library
Rope Ferry Road, Route 156
Waterford, Connecticut 06385

Northeast Utilities Service Company
ATTN: Mr. James R. Himmelwright
Nuclear Engineering and Operations
P. O. Box 270
Hartford, Connecticut 06101

Mr. John Shedlosky
Resident Inspector/Millstone
c/o U.S. NRC
P. O. Drawer KK
Niantic, CT 06357

Mr. Charles B. Brinkman
Manager - Washington Nuclear
Operations
C-E Power Systems
Combustion Engineering, Inc.
4853 Cordell Ave., Suite A-1
Bethesda, Maryland 20014

Connecticut Energy Agency
ATTN: Assistant Director, Research
and Policy Development
Department of Planning and Energy
Policy
20 Grand Street
Hartford, Connecticut 06106

REQUEST FOR ADDITIONAL INFORMATION
MILLSTONE #2
ADEQUACY OF STATION ELECTRIC DISTRIBUTION SYSTEM VOLTAGES

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

Ref. 2: Attachment 3 of Northeast Utilities letter (W. G. Counsil) to NRC (D. L. Ziemann), dated November 15, 1979

1. Guidelines 1 and 7 (Ref. 1) require that a separate analysis be performed for all available connections to the offsite network and that the analysis be adequately documented for each condition analyzed. Ref. 2 does not fully meet these requirements. To confirm the acceptibility of the voltage conditions on the station electric distribution system, submit adequate voltage analysis documentation for each case and condition analyzed in Ref. 2 and additional documentation, specifically:

   a. Requirements of Guidelines 6 and 11 as well as 5 and 13 (Ref. 1) must be included in each separate case analyzed. These guidelines refer to the use of minimum and maximum expected grid voltages, maximum loads assumed for each analyzed case and a list of assumptions made for each analyzed case.

   b. Supply the calculated voltages for all low voltage AC (less than 480 volts) Class 1E buses (including all available source connections) for each analyzed case. Do these buses supply instrumentation or control circuits as required by GDC 13? If so, is all equipment capable of sustaining the analyzed voltages without blowing fuses, overheating, and without affecting the equipment's ability to perform the required function?

c. Per Guidelines 3 and 9 (Ref. 1), compare the effect of starting and running the largest non-Class 1E load on all Class 1E buses and loads with the required voltage range for normal operation of all Class 1E equipment (starters, contactors, motors, etc.) for each available connection of offsite power. This comparison should occur after the Class 1E buses are fully loaded.

d. Ref. 2, Page 3, Item 2 identifies a viable offsite source connection to the Class 1E buses by backfeeding from the 345 KV switchyard through the main transformer and transformer NSST-2. A complete analysis is required or identify limiting conditions of operation.

e. From the sketches of the auxiliary buses submitted in Ref. 2, there appears a possible offsite source connection to the Class 1E buses from transformer SDT-1 (alternate supply to Millstone #1) via the link from transformer RSST-1. An analysis is required for this source connection unless interlocks prevent the connection or limiting conditions of operation are identified.

f. Submit a voltage analysis which meets Guideline 2 (Ref. 1); that is, Unit #2 is experiencing an accident or anticipated transient with the simultaneous shutdown of Unit #1 for all available source conditions.

2. Ref. 2, Page 3, Paragraph 3 refers to a proposal for installing a second second-level of undervoltage protection for the Class 1E equipment when transformer RSST-1 is supplying the shutdown loads of Unit #2. The design of the second-level of undervoltage protection (NRC Staff Position 1, June 2, 1977 letter) is to protect all Class 1E equipment

from grid voltage degradation under all modes of operation. Explain in detail why this second second-level protection scheme is necessary.

3. Ref. 2, Page 4 identifies three separate conditions when the +10% overvoltage capability of the motors is exceeded on the 480 V, 4160 V, 6.9 KV buses. Installation of overvoltage alarms will be added to initiate operator corrective action. Credit will be given for this corrective action only if the overvoltage monitors and alarms are Class 1E, and in the interim period of correction the overvoltage condition does not shorten equipment life or affect the Class 1E equipment's ability to perform the required function. Provide documentation which demonstrates the equipment can meet these overvoltage conditions. Also, provide the calculated overvoltages on all Class 1E equipment for each case analyzed.

4. Per Guidelines 10 and 12 (Ref. 1) submit the undervoltage protection scheme setpoints (voltage and time-delay) in terms of Class 1E nominal bus voltage, not in terms of switchyard voltage as stated in Ref. 2.