Distribution:
Docket File
NRC PDR
Local PDR
ORB #2 Rdg
D. Eisenhut
OELD
OI&E (3)
K. Eccleston
S. Norris
NSIC
TERA
ACRS (10)
J. Heltemes

Docket No. 50-263

May 5, 1981

Mr. L. O. Mayer, Manager
Nuclear Support Services
Northern States Power Company
414 Nicollet Mall - 8th Floor
Minneapolis, Minnesota 55401

Dear Mr. Mayer:

We have reviewed your submittal dated January 30, 1981 on adequacy of station electric distribution system voltages for the Monticello Plant and found that additional information is required before our review can be completed.

Please provide us the additional information requested in the enclosure within 45 days of receipt of this letter.

Sincerely,

Original Signed by
T. A. Ippolito

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

Enclosure:
Request for Additional
Information

cc w/encl:
See next page

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SURNAME	SNorris:ms	KEccleston	TAIppolito				
DATE	5/4/81	5/5/81	5/5/81				

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

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TAIppolito

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Operating Reactors Branch #2
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cc w/encl:
See next page

Mr. L. O. Mayer
Northern States Power Company

cc:

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Executive Director
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Minneapolis Public Library
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Minneapolis, Minnesota 55401

U. S. Nuclear Regulatory Commission
Resident Inspectors Office
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Monticello, Minnesota 55362

Mr. Steve Gadler
2120 Carter Avenue
St. Paul, Minnesota 55108

REQUEST FOR ADDITIONAL INFORMATION REGARDING THE
ADEQUACY OF STATION ELECTRIC DISTRIBUTION SYSTEMS VOLTAGES

MONTICELLO NUCLEAR POWER PLANT
(Docket No. 50-263)

References:

1. L. O. Mayer "Analysis of Adequacy of Station Electric Distribution System Voltages", January 30, 1981.

2. L. O. Mayer "Supplemental Information Concerning Equipment Performance Under Degraded Voltage Conditions", March 4, 1977.

1. What is the service factor of the 4000V,460V and 440V ECCS motors?

2. How did you arrive at a 77% motor starting terminal voltage (reference 1, page 7) for motor supplied by the MCC's when Table 4, case 1 shows a 64.2% worst case starting voltage at MCC 33 and 66.6% at MCC 43?

3. Does the 77% apply to the 460V or the 440V ECCS motors?

4. Do you have other safety related equipment other than motors (battery chargers, inverters, etc.) that operate from the safety related buses? If so, what is the normal operating range of the equipment? Will this equipment continue to function under the transient conditions noted in Table 4?

5. Regarding your proposed test to verify the analytical results (page 9, reference 1) our latest guideline requires that testing should be performed by:

   a) Loading the station distribution buses, including all Class 1E buses down to the 120/208V level, to at least 30%;

   b) Recording the existing grid and Class 1E bus voltages and bus loading down to the 120/208 volt level at steady state conditions and during the starting of both a large Class 1E and non-Class 1E motor (not concurrently);

(Note) To minimize the number of instrumented locations, (recorders) during the motor starting transient tests, the bus voltages and loading need only be recorded on that string of buses which previously showed the lowest analyzed voltages.

   c) Using the analytical techniques and assumptions of the previous voltage analyses and the measured existing grid voltage and bus loading conditions recorded during conduct of test, calculate a new set of voltages for all Class 1E buses down to the 120/208 volt level.

d) Compare the analytical derived voltage values against the test results.

With good correlation between the analytical results and test results, the test verification requirement will be met. That is, the validity of the mathematical model used in performance of the analysis will have been established. In general the test results should be within $\pm$ 3% of the analytical results; however, the difference between the two when subtracted from or added to should never provide values that would allow operation of the Class 1E equipment outside of rated voltage ranges.