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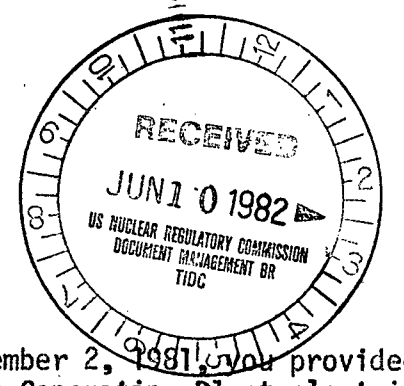

Mr. L. O. Mayer, Manager
Nuclear Support Services
Northern States Power Company
414 Nicollet Mall - 8th Floor
Minneapolis, Minnesota 55401

Dear Mr. Mayer:

Re: Monticello Nuclear Generating Plant

By letters dated January 30, June 25 and November 2, 1981, you provided information related to the Monticello Nuclear Generating Plant electrical distribution system voltages in response to the NRC generic letter of August 8, 1979, "Adequacy of Station Electric Distribution Systems Voltages".

On the basis of our review, (copy enclosed), we have concluded that the Monticello Nuclear Generating Plant design is acceptable with respect to the adequacy of station electric distribution system voltages.

Sincerely,

ORIGINAL SIGNED BY

Domenic B. Vassallo, Chief
Operating Reactors Branch #2
Division of Licensing

Enclosure:
Safety Evaluation

cc w/enclosure:
See next page

OFFICE	ORB#2:DL	ORB#2:DL		ORB#2:DL	C-ORB#2:DL		
SURNAME	SNorris	HNicolaras	BDudley	VRooney	DVassallo		
DATE	5/20/82	5/20/82	5/20/82	5/20/82	5/28/82		

Mr. L. O. Mayer
Northern States Power Company

cc:

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

CONCERNING

ADEQUACY OF STATION ELECTRIC DISTRIBUTION SYSTEM VOLTAGES

FOR

NORTHERN STATES POWER COMPANY

MONTICELLO NUCLEAR GENERATING PLANT

DOCKET NO. 50-263

Principal Contributor: R. Prevatte

INTRODUCTION

Northern States Power Company (NSP, licensee) was requested by NRC letter dated August 8, 1979 to review the electric power system at Monticello Nuclear Generating Plant. The review was to consist of:

a) Determining analytically the capacity and capability of the offsite power system and onsite distribution system to start automatically as well as operate all required loads within their required voltage ratings in the event of: 1) an anticipated transient, or 2) an accident (such as a LOCA) without manual shedding of any electric loads.

b) Determining if there are any events or conditions which could result in the simultaneous or consequential loss of both required circuits from the offsite network to the onsite electric distribution system and thus violating the requirements of General Design Criteria (GDC) 17, "Electric Power Systems" of Appendix A to 10 CFR 50.

The August 8, 1979, letter included staff guidelines for performing the required voltage analysis and the licensee was further required to perform a test to verify the validity of the analytical results. NSP responded by letters dated January 30, June 25, and November 2, 1981.

DISCUSSION

NSP analyzed each offsite power source to the onsite distribution system under maximum and minimum load conditions with the offsite power sources at maximum and minimum voltages. NSP then verified the voltage analysis by taking voltage and load measurements on the grid and that string of Class 1E buses which showed the lowest voltages during the analysis. Additionally, included in the tests were the transient voltage effects created by starting a large non-Class 1E and Class 1E load. NSP compared the experimental to the analytical results and found that the voltages measured approximately 2% higher than the calculated voltages. Therefore, the analysis was confirmed as accurate and conservative.

As a result of the voltage analysis, NSP had to perform the following modifications:

1. The emergency core cooling system loads had to be sequenced on both offsite power source transformers; and

2. The transformer taps on the reserve auxiliary transformer had to be changed from 13.3/4.33 to 14.0/4.33. In a phone conversation on April 20, 1982, the licensee stated that the modifications were completed during the October 1981 maintenance outage and during the April 1981 refueling outage, respectively.

EVALUATION

Under a technical assistance contract to the NRC, EG&G performed a detailed review and technical evaluation of the submittals. EG&G reported this work in the Technical Evaluation Report (TER), "Adequacy of Station Electric Distribution System Voltages, Monticello Nuclear Generating Plant, Unit 1," dated February , 1982 (copy attached). We have reviewed the report and concur in the conclusions drawn by EG&G that the Monticello offsite power system and the onsite distribution system (as modified) are capable of providing acceptable voltages for worst-case station electric load and grid voltages.

CONCLUSION

After reviewing the licensee's submittals and completed modifications, we conclude that NSP has reaffirmed compliance with General Design Criterion 17 of Appendix A to 10 CFR Part 50. Therefore, we find the Monticello Nuclear Generating Plant design to be acceptable with respect to the adequacy of station electric distribution system voltages.

Attachment:
EGG-EA-5783, February 1982

Dated: