

A001

REGULATORY INFORMATION DISTRIBUTION SYSTEM

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N. States Pwr  
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Responds to 780807 NRC request for surveillance & info re Reactor  
Protec Sys Pwr Supply Design. Final details on any facil or spec mod will  
be submitted by 780201 when studies are complete.

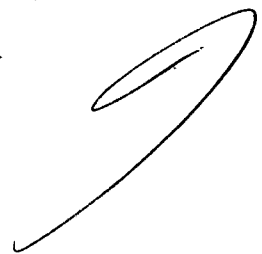
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NOTES:



# NSP

NORTHERN STATES POWER COMPANY

MINNEAPOLIS, MINNESOTA 55401

October 12, 1978

Director of Nuclear Reactor Regulation  
U S Nuclear Regulatory Commission  
Washington, DC 20555

MONTICELLO NUCLEAR GENERATING PLANT  
Docket No. 50-263 License No. DPR-22

Reactor Protection System (RPS) Power Supply Design

Reference

(a) Letter, T Ippolito (NRC) to L O Mayer (NSP), dated August 7, 1978.

Reference (a) requested that Northern States Power Company initiate surveillance as specified by the NRC and provide information addressing four major areas related to the subject. These four items were:

- (1) Evaluate if there is a potential for undetected single failures to adversely affect the reactor protection system
- (2) Evaluate if there is a potential for the postulated sequence of events initiated by an earthquake which could adversely affect the reactor protection system
- (3) Identify necessary or desirable facility modifications and proposal for implementation
- (4) Identify necessary or desirable Technical Specification changes and proposal for implementation

The Monticello operating staff had previously conducted the logging of RPS mg set output current and voltage several times each shift since initial plant startup. Northern States Power Company agrees to comply with Items 1, 2, and 4 listed in Attachment 1 of Reference (a). We feel that the calibration frequency listed in Item 3 should be on a refueling interval basis.

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Reference (a) addressed Criteria 2 and 21 of the General Design Criteria. With regard to that section of Criterion 2 applicable to earthquakes and geological history, the site is located in a Zone 0 (no damage) according to the Coast and Geodetic Survey's "Seismic Probability Map of the United States". The reactor protection system is considered as Class I equipment. Class I equipment was analyzed to assure that a safe shutdown can be made during ground accelerations of .06g (operating basis earthquake) and .12g (design basis or maximum earthquake). The power supply was not considered as Class I.

The generator has a voltage regulator designed to respond to a step load change of 50% of rated load with an output voltage change of not greater than 15%. The RPS power supply motor generator (mg) sets each have two (2) protective functions associated with the generator and one (1) associated with the breaker. The generator protective features are: (1) overvoltage switch and (2) underfrequency switch, both of which would trip the generator output breaker. The output breaker has an undervoltage trip. These three (3) switches are not seismically qualified. It appears that a potential for undetected single failures might exist.

General Electric has informed us that the design of the equipment in question has been installed in BWR's since 1970. Those operating BWR's have 134 reactor years of operation without a reported failure. This includes three BWR's that were operating during a severe earthquake of 7.5 on the Richter scale.

The NSSS supplier, General Electric, has also informed us that they have initiated a program to evaluate seismic capabilities of the existing system. The results of that program will not be available until January, 1979.

With regard to items (3) and (4), Northern States Power Company is investigating the two options available -

- (1) To design a plant unique system that will meet the new criteria, if required, or
- (2) To join other BWR owners and General Electric in pursuing development of a generic modification. Design of a generic modification would be influenced by NRC acceptance of the Hatch 2 system.

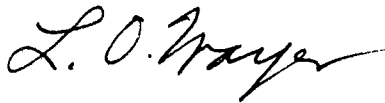
If a modification is required, installation would not be possible until the Monticello Unit's 1980 refueling outage. Sufficient lead time would be required for completion of system design (if needed), procurement of qualified equipment, and installation.

Based on the final evaluation concerning the power supply, technical specifications would follow.

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We regret that we are unable to submit final details on facility modifications and specifications at this time. We expect that studies relating to the subject will be completed so that we can submit more complete information on February 1, 1979. Please contact us if our proposed schedule for complying with your request is not satisfactory.



L O Mayer  
Manager of Nuclear Support Services

LOM/JAG/ak

cc: J G Keppler  
G Charnoff