

NSP**NORTHERN STATES POWER COMPANY**

MINNEAPOLIS, MINNESOTA 55401

February 20, 1973

Mr. D. J. Skovholt
Assistant Director for Operating Reactors
Directorate of Licensing
United States Atomic Energy Commission
Washington, D.C. 20545



Dear Mr. Skovholt:

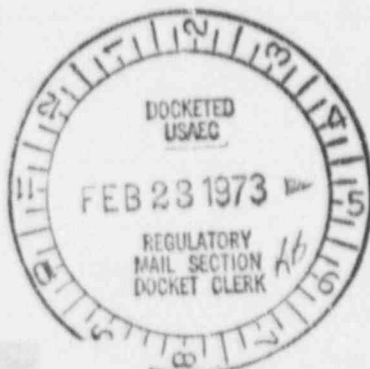
MONTICELLO NUCLEAR GENERATING PLANT
DOCKET NO. 50-263 LICENSE NO. DPR-22

Review of Control Circuits of
Safety Related Equipment

The results of the review are being reported in response to your letter dated December 22, 1972, which cited two cases of control circuit deficiency and requested a review of the control circuits of all safety related equipment at the plant to assure that disabling of one component does not, through interlocks or sequence control, cause inoperability of other components.

The first control circuit deficiency cited in your letter, pertaining to the interlock which prevents two redundant Standby Liquid Control System pumps from operating concurrently, was known prior to receiving your letter. The interlock was provided by use of auxiliary "b" contacts of the pump motor starters which results in disabling of both pumps when either motor starter is in the racked out position. Operating orders had been issued to assure that neither standby liquid control pump motor starter would be racked out of the operating position without the operator electrically defeating the interlock. The motor control center cells, in which the standby liquid control pump motor starters are located, were also conspicuously marked with instructions to defeat the interlock immediately upon removal of either motor starter.

We had also previously investigated the possibility of interlocks associated with the Reactor Building Ventilation supply damper control circuitry and found no such deficiencies as in the second case you have cited.



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We have, with the participation of General Electric, reviewed the following list of nuclear steam supply safety related systems and have verified them to be free of disabling interlocks.

- a) Reactor Protection System
- b) Nuclear Steam Supply System
Isolation or Shutoff System
- c) Core Standby Cooling System:
 - Core Spray
 - LPCI
 - HPCI
 - ADS
- d) HPCI/RCIC combination for vessel water inventory control after
coolation of reactor vessel.
- e) Standby Liquid Control System (with the exception of the pump
interlock noted above)

All of the above systems are designed such that redundant subsystems can operate concurrently, with the exception of the SLC pumps previously considered, and the removal of circuit breakers or other components from any one subsystem will not disable the redundant counterpart.

Safety related systems not designed by General Electric have been reviewed, with assistance from the architect-engineers, and have been found to be free of disabling interlocks. The systems and equipment reviewed include:

- a) Standby Gas Treatment System
- b) Primary Containment Isolation System
- c) Reactor Building Heating and Ventilating System (including inlet
and exhaust fan and damper controls).
- d) Standby Power Load Shedding Control
- e) Service Water Control System for RHR and HPCI
- f) Standby Emergency Diesel Generator Starting and Loading Control

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In addition, all 4.16KV station auxiliary bus source breaker controls and essential 480V bus source and load supply breaker controls have been reviewed for interlocks that might have safety implications. As with the General Electric designed safety related systems, redundant systems are designed to be operated concurrently and the removal from service or disabling of one or more components in a system will not effect the operability of the redundant counterpart.

Present policy requires that when systems or components are deliberately made inoperable for maintenance, required operability demonstration of backup equipment should be performed prior to disabling the affected system or component. Based on the control circuit review reported in this letter and past experience in testing redundant systems with components disabled, we believe there is adequate assurance that disabling a portion of a redundant system will not render another component inoperable, and repetition of operability demonstration after disabling a portion of a redundant system is not necessary.

Yours very truly,



L O Mayer, P.E.
Director of Nuclear Support Services

LOM/SJK/dm

cc: B H Grier
G Charnoff
Minnesota Pollution Control Agency
Attn. K Dzigan

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FILE

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Mr. Skovholt	1 signed					
CLASS: U PROP INFO	INPUT	NO CYS REC'D	DOCKET NO:			
		40	50-263			

DESCRIPTION:
Ltr re our 12-22-72 ltr.....furnishing info re
Review of Control Circuits of Safety Related
Equipment.....

ENCLOSURES:

Do Not Remove
ACKNOWLEDGED

PLANT NAMES: Monticello

FOR ACTION/INFORMATION

2-23-73

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