



UNITED STATES  
ATOMIC ENERGY COMMISSION  
DIRECTORATE OF REGULATORY OPERATIONS  
REGION III  
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February 28, 1973

Northern States Power Company  
ATTN: Mr. Leo Wachter, Vice President  
Power Production and System  
Operation  
414 Nicollet Mall  
Minneapolis, Minnesota 55401

Docket No. 50-263

Gentlemen:

The attached Directorate of Regulatory Operations Bulletin No. 73-1, "Faulty Overcurrent Trip Delay Device in Circuit Breakers for Engineered Safety Systems", is sent to you to provide you with information we received from the Wisconsin Electric Power Company and the Rochester Gas and Electric Corporation concerning the Point Beach and Cinna pressurized water reactor facilities. This information may relate to the design, fabrication and performance of certain equipment at your facilities.

Action requested on your part is identified in Section B of the Bulletin. The information requested should be provided to this office, in writing, within forty-five days of your receipt of this letter.

Should you have any questions concerning this matter, we will be pleased to discuss them with you.

Sincerely yours,

Boyce H. Grier  
Regional Director

Attachment:  
RO Bulletin No. 73-1

bcc: RO Files  
DR Central Files  
PDR  
Local PDR  
OGC, Beth, P-506A

RG

Date: February 28, 1973  
Directorate of Regulatory  
Operations Bulletin 73-1

## FAULTY OVERCURRENT TRIP DELAY DEVICE IN CIRCUIT BREAKERS FOR ENGINEERED SAFETY SYSTEMS

We have received information from two licensees relating to the failure of circuit breakers in engineered safety systems. These circuit breakers, Westinghouse Models DB-25, DB-50 and DB-75, are used extensively at both PWR and BWR facilities. These failures, which could negate operation of engineered safety system components, were attributed to faulty overcurrent trip delay devices. Westinghouse has formulated an on-site testing program to determine if the time delay devices are faulty and is developing a new end cap for the dashpot used in the time delay devices. Similar make and model circuit breakers, when used for scram purposes, do not require the overcurrent trip feature and, therefore, are not included in this problem. Pertinent details relating to this problem are contained in Section A below. Action requested by this Bulletin is contained in Section B.

### A. Description of Circumstances

#### Plant A

During the performance of the routine monthly surveillance test of the Safety Injection System, the pump motor tripped as it approached operating speed. A second attempt to start the pump produced the same result. The cause of the pump trip was attributed to malfunction of an overcurrent trip device. This device, which has an adjustable time delay, tripped out the pump motor on starting current because of leakage in the time delay dashpot. Subsequent examination of the dashpot disclosed a crack in the end cap of the air chamber. The crack permitted air to leak into the chamber at an excessive rate, reducing the time delay from approximately 45 seconds to 5 seconds. Testing of similar model breakers equipped with the overcurrent trip delay feature revealed four additional units with low trip delay times caused by cracks in the end caps. Approximately 25 circuit breakers of the type described are utilized to energize components of engineered safety feature systems at this facility.

Plant B

A 480 volt AC bus circuit breaker tripped open when the auxiliary building supply and exhaust fans were started simultaneously. The cause of the failure was attributed to a crack in the end cap of the time delay dashpot in the overcurrent trip device. The trip delay unit and the circuit breaker in question are similar to the units which failed at Plant A.

The cracks found in the end caps of the time delay dashpots are considered a common mode of failure.

B. Action Requested of the Licensee

It is requested that you determine whether safety related (Class IE) circuit breakers of the described make and models utilizing over-current trip time delay features are installed, or will be installed, at your facilities and provide this office with your findings.

If the subject breakers are installed, please include in your response a description and the results of your program to determine if you have any faulty overcurrent trip time delay devices installed and the scheduled completion date of your corrective actions. For facilities currently under construction please inform us of your plans to assure that the appropriate modification has been incorporated in all safety related circuit breakers of the type described that have been or will be installed at your facility.