

PART 21 IDENTIFICATION NO. 80-233-001 COMPANY NAME Westinghouse

DATE OF LETTER 6/18/80 DOCKET NO. 50-295

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ACTION:

PRELIMINARY EVALUATION OF THE ATTACHED REPORT INDICATES LEAD RESPONSIBILITY FOR FOLLOW-UP AS SHOWN BELOW:

IE  NRR  NMSS  OTHER

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Westinghouse  
Electric Corporation

Water Reactor  
Divisions

Nuclear Technology Division

Box 355  
Pittsburgh Pennsylvania 15230

NS-TMA-2264

June 18, 1980

Mr. Victor Stello, Jr.  
Director  
Office of Inspection and Enforcement  
U.S. Nuclear Regulatory Commission  
Washington, D.C.

80-233-001

Dear Mr. Stello:

In its June 14, 1980 notification to Region III of the NRC Directorate of Regulatory Operations, the Commonwealth Edison Company reported on the malfunctioning of a switch important to safety at its Zion Unit 1 generating station. In conjunction with Commonwealth Edison and Westinghouse Switchgear Division, the manufacturer of the switch, the Water Reactors Division of Westinghouse has investigated the nature of the problem and assessed its safety impact as follows.

On May 15, 1980, during performance of safeguards testing at Zion 1, a Westinghouse Type W-2 switch was observed to be the cause of the 1A Service Water Pump's failure to automatically start on command from the Safeguards Actuation System. Although the switch was properly in the Automatic Start (Neutral) position, its contacts, series-connected to safeguards actuation relay contacts, did not provide electrical continuity and thus prevented automatic start of the pump. The pump was started successfully when the switch was positioned to the 1 o'clock Start position, a manual operation.

Subsequent tests by Commonwealth Edison on the malfunctioning switch identified intermittent contact closure with the switch in the Automatic Start position, and resulted in notification to Westinghouse of the problem on June 12, 1980. Tests on identical switches from spares and Unit 2 equipment disclosed two additional switches with a tendency for intermittent contact closure. All tests were inconclusive however, since intermittent operation was neither controllable nor reproducible over an extended period.

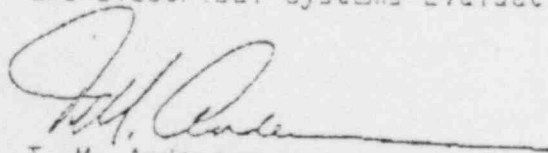
In conjunction with the Commonwealth Edison Co.'s notification to the NRC on June 14, 1980 Westinghouse alerted the utility owners of all Westinghouse operating plants that Zion had experienced switch malfunctions and recommended immediate testing of W-2 switches in systems important to safety. There is a possibility that the Type W-2 switch is used in safeguards and non-safeguards applications in other than Westinghouse nuclear facilities, but we are unable to specifically identify them.

On June 17, 1980 the Westinghouse WRD Safety Review Committee assessed the generic impact of the current problem. The following were taken into account during the review; (1) switch malfunction would not have prevented manual safeguards actuation by the operators (switch to Start position), (2) design redundancy allows for a single failure, however, failure to establish continuity is undetectable until the equipment is called upon to operate, (3) failure of safeguards equipment to actuate is discernable to the operators, (4) the problem is limited to only those W-2 switches with spring return to neutral (Auto) position.

Westinghouse performance requirements for safeguards systems call for reliable, automatic operation and since it was unable to preclude a generic problem without a clear understanding of the failure mechanism, the WRD Safety Review Committee concluded that the malfunctions constituted a potential substantial safety hazard reportable to the NRC under 10 CFR Part 21 for operating plants and a potential significant deficiency under 10 CFR 50.55(e) for plants under construction. It also recommended (1) immediate implementation of status tests recommended on June 14, 1980 of W-2 switches (with spring return to neutral) in systems important to safety at operating plants to confirm proper contact closure, (2) continuity tests of these switch contacts immediately following any switch operation with return to the Automatic Start (neutral) position from either the Stop or Start positions. These recommendations are contained in the Westinghouse Technical Bulletin attached. This information is being provided to the utility owners of all Westinghouse plants.

Power Systems Engineering in the Westinghouse Nuclear Technology Division, in conjunction with the Westinghouse Switchgear Division have initiated a program aimed at identifying the exact nature of the intermittent contact operation of the Type W-2 switch. All findings resulting in either additional or alternate recommendations will be forwarded to the NRC and Westinghouse customers.

Please refer any questions to Mr. D. H. Rawlins, Manager of Standards and Electrical Systems Evaluation in the Nuclear Safety Department.



T. M. Anderson  
Manager  
Nuclear Safety Department

FWM/TMA/wpc

Attachment

No.: NSD-TB-80-9  
Date: 5/13/80

NSD TECHNICAL BULLETIN

(Preliminary information only. An interim advisory notice of a recent significant technical development requiring immediate consideration by Westinghouse Nuclear Service personnel. Supplemental instructions and information, as appropriate, to follow through normal division and department procedures.)

Subject W-2 Switches (with spring return to neutral)  
System(s) Electrical Control S.O.(s) 385  
Affected Plants All Sites  
References Technical Bulletin NSD-TB-73-26

Information:

During monthly operational testing of the safeguards system at an operating nuclear plant, intermittent W-2 switch operation was discovered in the neutral (auto) position. Investigations revealed that the intermittent operation resulted when the switch is returned from the eleven or one o'clock positions to the neutral (auto) position. This matter was reported to the Nuclear Regulatory Commission.

The switch manufacturer (Westinghouse Switchgear Division, East Pittsburgh, Pa.) is currently investigating the situation in detail. Information from this investigation will be supplied to you as soon as it is available. In the interim, the following action should be taken.

Recommended Action:

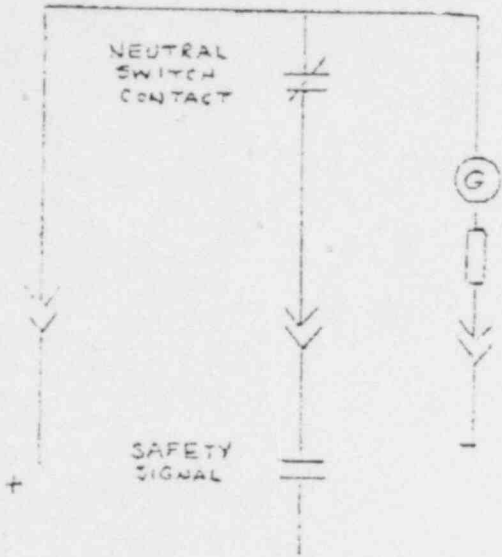
All plants should test all safety-related contacts of the W-2 switches (with spring return to neutral position) in the neutral position.

Furthermore, these tests should be repeated following each subsequent use (removal from the neutral position) of the switch. Testing should be done either at normal operating voltage at the contacts, or at least 24 volts DC. As an alternative to repetitive continuity checks after switch operation, wiring to the existing breaker "green light" indicator may be put in series with the neutral position safety-related switch contacts. (See sketch). Plant operators should then be aware that "green light" indication may no longer exist during the lock-out (pull-out) position.

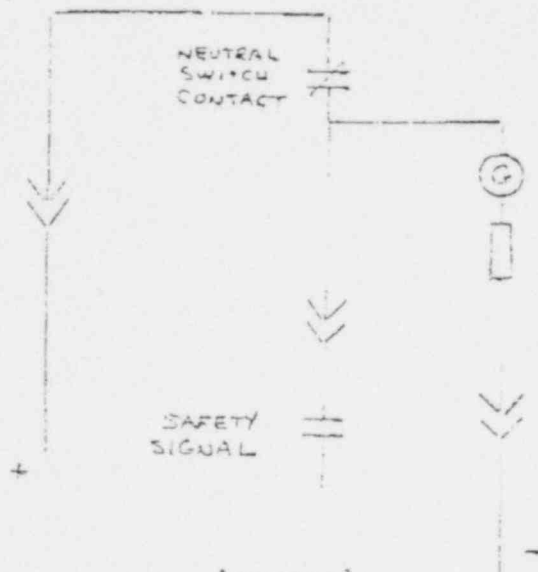
Green light indication will now confirm closure of the safety-related switch contacts in the neutral position. This "green light" indication should be checked after each switch operation.

Further Westinghouse recommendations will be transmitted as soon as current investigations are complete.

EXISTING (TYPICAL)



PROPOSED (TYPICAL)



Originator:

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U.S. BUREAU OF REGULATORY  
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