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MICHIGAN'S PROGRESS**

Palisades Nuclear Plant: 27780 Blue Star Memorial Highway, Covert, MI 49043

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December 23, 1993

Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

DOCKET 50-255 - LICENSE DPR-20 - PALISADES PLANT - REPLY TO NOTICE OF
VIOLATION; NRC INSPECTION REPORT No. 93026

NRC Inspection Report No. 93026, dated November 24, 1993 forwarded the results of a special unannounced safety inspection in the electrical design control area. The inspection report identified an apparent violation of NRC requirements pertaining to the modification of a spare safety-related breaker with inadequate (no) design control measures.

Our reply to the Notice of Violation is provided in the Attachment to this letter.


Gerald B Slade
General Manager

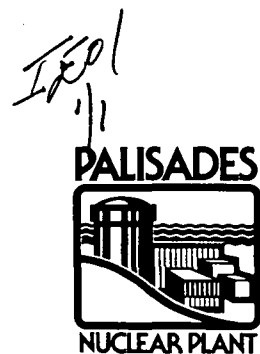
CC Administrator, Region III, USNRC
NRC Resident Inspector - Palisades

Attachment

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ATTACHMENT

Consumers Power Company
Palisades Plant
Docket 50-255

REPLY TO NOTICE OF VIOLATION

NRC INSPECTION REPORT No. 93026

December 23, 1993

REPLY TO NOTICE OF VIOLATION

Violation

10 CFR 50, Appendix B, Criterion III requires in part that design changes, including field changes, shall be subject to design control measures commensurate with those applied to the original design and shall be approved by the organization that performed the original design unless the applicant designates another responsible organization.

Contrary to the above, on July 9, 1993, a modification was made to a spare safety-related breaker during a maintenance activity and no design control measures of any kind were applied.

Reason for the Violation

In response to the electrical design deficiency issues described in the NRC's inspection report IR 93026, a multidisciplinary review group was formed to review the deficiencies. The group was tasked with identifying the root cause(s) for each of the deficiencies and to develop corrective action(s) to preclude similar conditions in the future. The multidisciplinary review group's report was discussed at the NRC Enforcement Conference on December 3, 1993. The reconfiguration of the contacts of the auxiliary switch in the spare breaker was one of the topics in the report and is re-iterated below.

A spare breaker had been in service in the Safeguards Transformer breaker cubicle (152-105) since the 1992 refueling outage. On June 25, 1993, the spare breaker was removed from the cubicle so that the original 152-105 breaker could be re-installed. During re-installation of the original 152-105 breaker, it was determined that the configuration of four of the auxiliary contacts was different between the original and spare breakers.

The spare breaker was scheduled to replace the breaker in the Start-up Transformer breaker cubicle (152-106). Prior to the replacement of the breaker in the 152-106 cubicle, a contact on the auxiliary switch of the spare breaker was reconfigured (placed a "normally open" contact in the "normally closed" state) in order to duplicate the visual configuration of contacts on the Safeguards Transformer breaker in the 152-105 cubicle. It was not realized that the spare breaker did not feature an internal limit switch, but instead used an auxiliary switch contact to initiate a transfer trip.

The 152-105 and 152-106 breaker cubicles are electrically connected with trip circuitry so that both breakers cannot simultaneously supply Bus 1C. As the spare breaker (with the contacts now re-configured to correspond to the visual contact configuration of the 152-105 breaker) was racked from the "disconnect" position to the "test" position in the 152-106 cubicle, the 152-105 breaker's transfer trip circuitry was completed through the "closed" auxiliary switch contact causing a transfer trip of breaker 152-105. As a result, Bus 1C de-energized and both diesel generators started. This event is described in Licensee Event Report (LER) 93-005, dated August 19, 1993.

The multidisciplinary review group determined that three root causes were attributable to this event. The three root causes are:

1. Lack of vendor information on the spare breaker internals.

Information in the vendor file provided conflicting information regarding the functional similarity of the two breakers. The final disposition from the vendor was that the spare breaker was "...completely electrically and mechanically interchangeable..." with the original breaker. An internal wiring schematic of the spare breaker was not maintained in the vendor file.

2. The modification process was not used.

Initially, both the electrical repairpersons and the systems engineer questioned the physical dis-similarity between the spare breaker and the original breaker. The systems engineer researched the available vendor file information and concluded that the breakers were similar and that the contacts could be re-configured with no resulting change in equipment or system function. As previously stated, the re-configuration did result in a change in function, providing an undesirable fast transfer trip signal to breaker 152-105. Changing contact configuration should have been recognized as likely affecting equipment function and, therefore, should have prompted the initiation of the modification process.

3. An invalid assumption was used that physical similarity represented functional similarity.

After reviewing the vendor documentation on the spare breaker, the systems engineer assumed the vendor information to be correct, and proceeded to re-configure the contacts to be similar to the contact configuration on the original breaker. It should have been recognized that vendor information does not necessarily represent a component's service when installed within a plant system.

Corrective Actions and Results Achieved

The following corrective actions have been taken as a result of this event.

1. Systems Engineers, Design Engineers, Procurement Engineers, and Chemistry Department Engineers were trained on the lessons learned from this event and the other events reviewed by the multidisciplinary review group. Emphasis was on the common causes of the event and corrective actions. A memo was also issued specific to this event to reiterate the lessons learned which are: assumptions must be verified; testing must be comprehensive and verify the intended result (additional testing may have detected the functional difference of the spare breaker); vendor information was not available in the vendor file, and; the design control process was not used.

2. An electrical schematic diagram for the spare breaker has been obtained and reviewed and will be added to the vendor file. An expectation has also been re-emphasized that purchase orders for new equipment must specify that documentation also be supplied and that the supplied documentation be placed in the vendor file.
3. Unique equipment identification numbers have been assigned to all spare 4160/2400 volt breakers and have been added to the Equipment Data Base.
4. The contact configuration for the spare breaker has been returned to the as found, pre-event, configuration and verified to be the correct configuration for use of the breaker.

The modification process is also being strengthened as a result of the multidisciplinary review group findings. Policy memos outlining the expectations for these reviews have been issued. These policy memos direct that facility changes and specification changes will undergo a multidisciplinary team review prior to release; that all specification changes be approved by an engineering manager (NECO or Systems Engineering) prior to their release for installation, and; that NECO will perform a technical review of all specification changes. Administrative procedures will be changed to incorporate these policies; however, in the interim, each engineering supervisor is expected to assure that the previously mentioned expectations are met before recommending approval of a facility change or specification change. Emphasis is on the quality of design change work. With respect to this event, the design change process will require multidisciplinary design review, including review of the intended test plans.

Corrective Action to Avoid Future Non-Compliance

To avoid future non-compliance a methodology will be developed for the control of spare breakers.

In addition, continuing technical staff training will be conducted for engineers which emphasizes the threshold at which the design change control program is invoked to process plant activities.

Date of Full Compliance

Full compliance has been achieved.