



**SOLIDSTATE CONTROLS**

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U.S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, DC 20555-0001

Attention: Document Control Desk

Subject: Notification of Potential Defect - 10CFR Part 21

Reference: Notification of Potential Defect regarding AMETEK Power Supply, series 85-RPXXX

Product: AMETEK Power Supply, series 85-RPXXX

Ametek Solidstate Controls is submitting the following Interim Report of a Potential Defect in accordance with the requirements of 10CFR21.

The attached document provides details on the potential problem, the ongoing evaluation, and actions required. Please contact us at the phone number or email provided above if there are any questions.

Sincerely,

Ethan Salsbury  
Quality Director  
Ametek Solidstate Controls

**SUMMARY**

AMETEK Solidstate Controls recently discovered a concern with the structural integrity of the 85-RP2675-01 Rack Mounted Power supply. While qualifying a replacement part for an obsolete breaker, the left panel of the power supply came loose after the hardware had sheared during the seismic simulation testing of the qualification. The loss of structural integrity of the power supply led to internal shorting and a premature stoppage of the simulation testing.

**PROBLEM YOU COULD SEE**

During a seismic event, a structural failure of the power supply enclosure resulting in a loss of output could occur. At this point, it is suspected that the failure is related to a variation in the components that increased strain on the power supply enclosure, and it is indeterminate if there is a widespread deviation. It is also possible that the cause of the failure is attributed to inadequately sized hardware that supports the bottom panel of the power supply. In the current design, there are 3 #10-32 machine screws through each of the side panels that fasten to the bottom panel to support the transformer.

AMETEK is unable to identify the actual structural support of power supplies in the field. In the recent testing performed, no support was provided under the power supply during the testing. If there is support in the end application from the bottom of the power supply, there may not be a structural concern as the connection screws would not be exposed to the same forces.

In this instance, the power supply had been exposed to a peak acceleration of approximately 4.8 Gs. It should also be noted that acceptable results have been obtained in previous seismic tests and changes have not been made to the structure of the power supply since its initial design in 1996.

**ACTION RECOMMENDED**

At this time, there are no actions to take as the evaluation is ongoing. The next step is to determine if the screws are likely to become overstrained with enough seismic force. To do this, AMETEK is repeating the test with two new power supplies. One power supply will not have any changes made to the structure while the second power supply will be enhanced to improve its seismic withstand capabilities.

The enhancement is an increase in the size of the hardware to 1/4" bolts that connects the side panels to the bottom panel through 5/16" through holes with a nut and washers. In combination, these changes will increase the force required to shear the hardware reduce the force on the bolt itself by allowing some movement to dampen the forces during a seismic event. While AMETEK believes this solution will be suitable, it has not been validated with a follow up seismic simulation test. Additionally, AMETEK is unable to determine the criticality of the applications the power supplies are installed in and if the safety function is required to be maintained during a seismic event, which will determine the need to take corrective actions.

A report of the next seismic test results will follow upon completion as a final evaluation. The current expected date for completion is May, 2020. For questions or clarifications in the meantime, please contact Ethan Salsbury at 1-614-410-6293.