



SOLIDSTATE CONTROLS

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January 31, 2025

U.S. Nuclear Regulatory Commission

Document Control Desk

Washington, DC 20555-0001

Attention: Document Control Desk
Subject: Notification of Potential Defect - 10CFR Part 21
Product: AMETEK Charger Control Board, X302, 80-9214031-90

AMETEK Solidstate Controls Inc. is submitting the following Interim Report of a Potential Defect in accordance with the requirements of 10CFR Part 21. The potential defect was discovered September 23, 2024, and investigations have been ongoing. Duke Energy Carolinas, LLC. submitted an interim report on October 28, 2024, reference EN# 57402.

Please contact me if you require any further information.

Sincerely,

Ethan Salsbury
Director of Quality
Ametek Solidstate Controls



COMPONENT DESCRIPTION:

AMETEK Solidstate Controls part number 80-9214031-90 is a charger control printed circuit board with a locator ID of X302. During evaluation, AMETEK identified two failed capacitors in two separate cases. The failed capacitors are provided below.

- Capacitor C35
 - o AMETEK part number: 03-010003-00
 - o Manufacturer: Sprague
 - o Manufacturer Part Number: TE1202
 - o Description: CAP,ELC,5UF,25V

- Capacitor C36
 - o AMETEK part number: 03-011006-00
 - o Manufacturer: Sprague
 - o Manufacturer Part Number: 199D4769090E6V1
 - o Description: CAP,ELC,47UF,20V,TAN,20%

PROBLEM YOU COULD SEE:

Three failures were reported by Duke Energy between August 21, 2024, and September 17, 2024. One failure showed signs of intermittent operation. The subject charger control board serial number is R301857005 and the is documented in AMETEK FAR 24-005.

The second charger control board was replaced after DC output voltage was fluctuating on charger C43185. FAR 24-006 captures this condition with PCB serial number R9182003.

The third board, FAR 24-007 and serial number R301857002, did not demonstrate failures experienced by the customer during the evaluation and the board performed. Since AMETEK was unable to recreate the issue, the failure mode could not be determined.

In the repeatable instances, the capacitors were observed to fail prematurely, resulting in an inability to maintain voltage output (C36) of the charger and loss of output/inability to turn on (C35)

EFFECT ON SYSTEM PERFORMANCE:

Fluctuations in voltage and loss of output/inability startup caused by the charger control board will stop the battery from charging.

ACTION REQUIRED:

At this point, AMETEK does not see either failure as a widespread or systemic issue. Both cases could be assignable to common cause variation in the manufacturing process and outliers in the lifespan.

AMETEK SOLIDSTATE CONTROLS CORRECTIVE ACTION:

AMETEK is continuing to evaluate the condition. The original evaluation completion date was January 31, 2025. AMETEK is extending the evaluation to February 28, 2025, although it is anticipated the completion date will improve final notification. Remaining steps include completing the cause analysis, identifying all affected equipment, finalizing any corrective action measures, and determining actions required.