

Part 21 (PAR)

Event # 52657

<b>Rep Org:</b> AMETEK		<b>Notification Date / Time:</b> 04/03/2017 09:28 (EDT)	
<b>Supplier:</b> VISHAY/INTERNATIONAL		<b>Event Date / Time:</b> 06/01/2016 (EDT)	
<b>Last Modification:</b> 04/03/2017			
<b>Region:</b> 3	<b>Docket #:</b>		
<b>City:</b> COLUMBUS	<b>Agreement State:</b>		Yes
<b>County:</b>	<b>License #:</b>		
<b>State:</b> OH			
<b>NRC Notified by:</b> ETHAN SALSBURY	<b>Notifications:</b>	MICHAEL KUNOWSKI	R3DO
<b>HQ Ops Officer:</b> HOWIE CROUCH		CHRISTOPHER CAHILL	R1DO
<b>Emergency Class:</b> NON EMERGENCY		PART 21/50.55 REACTORS	EMAIL
<b>10 CFR Section:</b>		EUGENE GUTHRIE	R2DO
21.21(d)(3)(i) DEFECTS AND NONCOMPLIANCE		MICHAEL VASQUEZ	R4DO

PART 21 NOTIFICATION - FAILURE OF VISHAY DIODES

The following information is the summary letter was received from Ametek via email:

"Product: Vishay/ International Rectifier Clamp, Diodes 600 V, 250A, forward and reverse bias. Ametek part numbers 07-600254-00 and 07-600255-00.

"Ametek Solidstate Controls is submitting the following Report of a Potential Defect in accordance with the requirements of 10CFR21. This notification is applicable to equipment model number 85-VC0250-29 provided to Dominion Nuclear at Millstone Power Station. Serial numbers affected by this potential defect are:

- C901880111
- C901880211
- C901880221
- C901880231
- C901880244

"AMETEK SOLIDSTATE CONTROLS CORRECTIVE ACTION: If you wish to replace the diodes, Ametek Solidstate Controls will work with you to arrange replacements. Please contact Mr. Mark Shreve of our Client Services group at 1-800-222-9079 or 1-614-846-7500 ext. 6332. mark.shreve@ametek.com"

"Please contact us at telephone: 614-846-7500; 1-800-635-7300 or e-mail: ethan.salsbury@ametek.com, if there are any questions.

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IE19  
NRR

**From:** [Ethan Salsbury](#)  
**To:** [Hoc, HOO X](#)  
**Subject:** [External\_Sender] Ametek Solidstate Controls Part 21- Reporting of Potential Defect  
**Date:** Monday, April 03, 2017 9:28:15 AM  
**Attachments:** [image002.png](#)  
[image003.png](#)  
[image005.png](#)  
[NRC Diode Part 21 Notification.pdf](#)

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Good morning,

Ametek Solidstate Controls is submitting the attached report as notification of a potential defect in compliance with 10CFR21. A copy will also be provided to the affected licensee, Dominion Millstone. Please confirm receipt and feel free to contact me with any additional questions.

Regards,

**Ethan Salsbury**  
Quality Manager

**AMETEK®**

SOLIDSTATE CONTROLS

875 Dearborn Drive | Columbus, OH 43085 | [www.solidstatecontrolsinc.com](http://www.solidstatecontrolsinc.com)  
D: +1 614 410 6293 | C: +1 419 206 1283 | [ethan.salsbury@ametek.com](mailto:ethan.salsbury@ametek.com)





**AMETEK**

**SOLIDSTATE CONTROLS**

**Quality Assurance**

875 Dearborn Drive, Columbus, OH 43085 U.S.A.  
Telephone: 614-846-7500; 1-800-635-7300  
E-mail: ethan.salsbury@ametek.com

April 3, 2017

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: Vishay/ International Rectifier Clamp, Diodes 600 V, 250A, forward and reverse bias.  
Ametek part numbers 07-600254-00 and 07-600255-00.

Ametek Solidstate Controls is submitting the following Report of a Potential Defect in accordance with the requirements of 10CFR21. This notification is applicable to equipment model number 85-VC0250-29 provided to Dominion Nuclear at Millstone Power Station. Serial numbers affected by this potential defect are:

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C901880211  
C901880221  
C901880231  
C901880244

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

Sincerely,

Ethan Salsbury  
Quality Manager  
Ametek Solidstate Controls



**COMPONENT DESCRIPTION:**

600 V, 250 A clamp diodes with Vishay/International Rectifier part numbers 300U60 and 300UR60 and Ametek part numbers 07-600254-00 and 07-600255-00, respectively.

Diodes were installed in 25kVA Inverter Ametek p/n 85-VC0250-29 with serial numbers C901880111, C901880211, C901880221, C901880231, and C901880244.

**PROBLEM YOU COULD SEE:**

A diode failure appears to occur approximately 8-9 years in the operating life of the device. There are no conclusive warning signs that a failure is imminent, or detection method for predicting an approaching failure. Failures resulted in loss of output voltage, transfer of the static switch, blown fuses, and unexpected alarms.

**CAUSE:**

The actual cause has not been determined. Two diode failures occurred in two separate 85-VC0250-29 Inverters at Millstone Power Station.

Diode failure analysis performed by Vishay in June of 2016 (I160153) suggested failure due to electrical overstress and the remaining diode showed signs of increased leakage current. Exelon Generation Failure Report DOM-72097 completed in September of 2016, indicated one diode was shorted and two others exhibited high leakage current. Neither evaluation identified a specific cause of the failure.

The failed diodes were manufactured in India in 2006 and one in 2007.

**EFFECT ON SYSTEM PERFORMANCE:**

Failures described above could result in loss of output voltage and transfer of the static switch to the bypass source which could result in potential loss of load.

**ACTION REQUIRED:**

Ametek Solidstate Controls recommends that each facility evaluate the potential risk and performs replacement as determined necessary. Recent evaluations have been unable to pinpoint a failure mode and history of these diodes provides no evidence of widespread failures. Only two known failures have surfaced and the failure rate has been low.

**AMETEK SOLIDSTATE CONTROLS CORRECTIVE ACTION:**

If you wish to replace the diodes, Ametek Solidstate Controls will work with you to arrange replacements. Please contact Mr. Mark Shreve of our Client Services group at 1-800-222-9079 or 1-614-846-7500 ext. 6332. [mark.shreve@ametek.com](mailto:mark.shreve@ametek.com)