

General Information or Other (PAR)

Event # 43218

Rep Org: TYCO ELECTRONICS	Notification Date / Time: 03/07/2007 09:30 (EST)
Supplier: TYCO ELECTRONICS	Event Date / Time: 03/05/2007 (EST)
	Last Modification: 03/07/2007
Region: 1	Docket #:
City: FIARVIEW	Agreement State: Yes
County:	License #:
State: NC	
NRC Notified by: ROBERT VILLEGAS	Notifications: JOHN CARUSO R1
HQ Ops Officer: MARK ABRAMOVITZ	GEORGE HOPPER R2
Emergency Class: NON EMERGENCY	STEVE ORTH R3
10 CFR Section:	VINCENT GADDY R4
21.21 UNSPECIFIED PARAGRAPH	OMID TABATAI(E-MAIL) NRR

POTENTIAL DEFECT IN E7000 RELAYS

"Notification of limited E7000 relay recall (CII-010).

"During our normal assembly processing of nuclear E7000 relays, Tyco Electronics experienced an issue with a component. A spring in the base assembly broke during the calibration process. An analysis of the spring revealed non-conforming heat treatment causing the spring to become brittle. Further investigation revealed that this condition was limited to one specific lot of springs."

The cause of the defect was determined to be stress corrosion cracking (SCC). Testing of other springs in this lot did not identify additional defective springs. Tyco's inspection process has been changed to better detect SCC. The defective springs have been purged from inventory and customers notified.

Plant affected by this recall are:

- Braidwood
- Farley
- Fitzpatrick
- Indian Point 3
- Limerick
- Millstone
- North Anna
- Oyster Creek
- Peach Bottom
- Perry
- Prairie Island

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San Onofre
Susquehana
Vogtle
Watts Bar

Other agencies/organizations:

Delphi Controls
Engine Systems Inc
Energy Oswego Warehousing
Ergy Tech
GE Nuclear Energy
Progress Energy Carolinas
Trentec Inc - Curtiss-Wright Flow Control Group



Robert Villegas, Sr. Quality Systems Engineer & Nuclear Quality Auditor Tyco Electronics Global Aerospace and Defense - CII Relays Asheville Operations 1396 Charlotte Highway Fairview, NC 28730

Telephone: 828-338-1017 Fax: 828-338-1101

Date: 5 March 2007

To: Operation Center United States Nuclear Regulatory Commission (NRC) Fax: (301)816-5151

Subject: Tyco Electronics - Part 21 Transfer of Information = CII-010

This letter is written in response to a NRC staff informal request for information regarding a Tyco Electronics 10CFR21 Evaluation, originally issued 16 November 2006; "Notification of Limited E7000 Relay Recall (CII-010).

During our normal assembly processing of nuclear E7000 relays, Tyco Electronics experienced an issue with a component. A spring in the base assembly broke during the calibration process. An analysis of the spring revealed non-conforming heat treatment causing the spring to become brittle. Further investigation revealed that this condition was limited to one specific lot of springs.

This follow-up final report serves to document our further evaluation and the corrective action taken on this issue:

- 1. Microstructure analysis of the broken spring revealed that the failure was caused by stress-corrosion cracking (SCC) not heat treatment. Testing of multiple samples of other springs from this lot failed to produce any other spring with SCC.
2. Testing of relays returned from customers based on this limited recall revealed that all relays and springs were functioning as required. No evidence of SCC was found.
3. For the corrective action, Tyco purged the specific lot of springs with the SSC condition in the inventory and "work in process". As a further preventive action, Tyco's receiving inspection has been changed to better detect if SCC is present in a specific lot. The inspection and manufacturing process in place at the time the broken spring was detected should have prevented any defective spring from being used in a relay that was shipped to a customer.

Based on our evaluation this issue is expected to have a low potential to produce a significant safety concern. However, Tyco Electronics does not have sufficient information to perform an evaluation for unspecified applications. Therefore customers having received the recall notification should return affected relays for inspection and rework. Based on the corrective action taken, no further action is required. Tyco considers this matter resolved.

If you have any questions on this condition of the evaluation and corrective action, please contact me at the number listed above.

Sincerely, Robert Villegas Sr. Quality Engineer

Attachment 1
Customers Notified by Tyco Electronics regarding this condition.

<i>CUSTOMER</i>	<i>LOCATION/PLANT</i>	<i>AFFECTED RELAYS</i>
Alabama Power Co.	Farley Nuclear Plant	4
Amergen Energy Co. LLC	Oyster Creek Generating Station	1
Delphi Controls		5
Dominion Nuclear	Millstone Nuclear power Station	1
Dominion Virginia Power	North Anna Power Station	1
Edison Material Supply	San Onofre Nuclear Gen. St.	1
Engine Systems Inc		3
Entergy Nuclear	Indian Point 3	4
Entergy Nuclear Operation	James A. Fitzpatrick LLC	2
Entergy Nuclear	Oswego Warehousing	1
Ergy Tech		3
Exelon Nuclear Div	Limerick Generating Station	1
Exelon Generation Company	Braidwood Warehouse	2
Exelon	Peach Bottom Atomic Power Station	1
First Energy Corp.	Perry Nuclear Plant	5
GE Nuclear Energy		1
Georgia Power Company	Vogtle Elect. Genr Plant/Nuc OPS Warehouse	5
Pennsylvania Power & Light	Susquehanna SES	8
Prairie Island Nuclear Generating Station		8
Progress Energy Carolinas, Inc.		2
Tennessee Valley	Watts Bar Nuclear Plant	2
Trentec, Inc	Curtiss-Wright Flow Control Group	5
	TOTAL	66

Attachment 2
Transfer of Information per Part 21.21 (b)

(i) Name and address of the individual providing the information:

Robert Villegas, Quality System Engineer, Tyco Electronics – CII of the Global Aerospace and Defense Division, 1396 Charlotte Highway, Fairview, NC USA 28730.

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity that contains a deviation or failure to comply;

Item supplied are E7000 relays with serial numbers beginning with 0523 through 0528. Certificates of Conformance stating exact relay description and serial numbers were sent to affected customers with November 16, 2006 notification.

Tyco sold this safety-related item for specified and unspecified applications. The customers for which Tyco had insufficient information to complete the Part 21 evaluation are listed in Attachment 1.

(iii) Identification of the firm constructing the facility or supplying the basic component that contains a deviation or a failure to comply:

Tyco Electronics, 1396 Charlotte Highway, Fairview NC, USA 28730

(iv) Nature of the defect or safety hazard that could be created by such a deviation or failure to comply:

If a spring is affected by SCC, the spring could break or fail to maintain appropriate pressure on the contact arm thereby preventing the relay from changing state when activated.

(v) The date on which the information of such a deviation or failure to comply was obtained"

Tyco Electronics made the determination of the existence of this condition in November 2006. Notice of Limited E7000 Relay Recall was issued to the customers we issued on 16 November 2006.

(vi) In case of a basic component, which contains a deviation or failure to comply, the locations of all such components in use or being supplied?

Customers that purchased affected safety-related items from Tyco Electronics for unspecified applications are identified in Attachment 1.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has been or will be taken to complete the action (note, these are actions specifically associated with the identified deviation or failure to comply:

Tyco purged the specific lot of springs with the SCC condition in its inventory and "work in process". The sampling plan for receipt inspection has been increased to enhance our ability to detect SCC in future lots of springs.

(vii) Any advice related to the deviation or failure to comply about the facility, activity, or basic component that has been, is being given to purchasers or licensees:

Based on our evaluation this issue is expected to have a low potential to produce a significant safety concern. However, Tyco Electronics does not have sufficient information to perform an evaluation for unspecified applications. Therefore customers having received the recall notification should return affected relays for inspection and rework.