

Part 21 (PAR)

Event # 51030

Rep Org: NUCLEAR LOGISTICS, INC	Notification Date / Time: 05/01/2015 13:32 (EDT)
Supplier: ALLEN BRADLEY	Event Date / Time: 04/30/2015 (CDT)
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County:	License #:
State: TX	
NRC Notified by: TRACY BOLT	Notifications: MEL GRAY R1DO
HQ Ops Officer: DANIEL MILLS	FRANK EHRHARDT R2DO
Emergency Class: NON EMERGENCY	ROBERT ORLIKOWSKI R3DO
10 CFR Section:	GEOFFREY MILLER R4DO
21.21(d)(3)(i) DEFECTS AND NONCOMPLIANCE	PART 21/50.55 REACTORS EMAIL

POTENTIALLY UNQUALIFIED COMPONENT IN CERTAIN ALLEN BRADLEY TIMING RELAYS

The following is an excerpt from a document received from the licensee via email:

"Report of potential 10 CFR Part 21, Allen Bradley Timing Relay Model 700RTC

"Pursuant to 10 CFR 21.21(d)(3)(ii), AZZ/NLI is providing written notification of the identification of a potential failure to comply.

"On the basis of our evaluation, it is determined that AZZ/NLI does not have sufficient information to determine if the subject condition would, or has, created a Substantial Safety Hazard or would have created a Technical Specification Safety Limit violation as it relates to the subject plant applications.

"The specific part which fails to comply or contains a defect:

"As of 2009-2010, Allen Bradley relays base model 700RTC, contain an unevaluated CPLD (Complex Programmable Logic Device). This was an unpublished design change that was implemented to replace an obsolete integrated circuit chip. The undocumented design change did not result in a part number change from Allen-Bradley. There was no change to the appearance of the relay that would identify any design changes were made to the relay configuration. Therefore, NLI qualification/dedication of the relays after 2009 have not included additional testing for the new CPLD component.

"The timing relay model 700RTC has been dedicated/qualified for multiple applications for various plants.

"Between 2009-2010 Allen Bradley made a design change without changing the part number of the commercial

IE19
MRR



1+2

To:

Fax (301) 816 – 5151
Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555

From:

Tracy Bolt
Director of Quality Assurance
AZZ|NLI Nuclear Logistics, Inc.
7410 Pebble Drive
Fort Worth, Texas 76118
817-284-0077

Pursuant to 10CFR 21.21 (d) (3) (ii), AZZ|NLI is providing in the following letter the written notification of the identification of a potential failure to comply.

Total Pages including this page: 6



Date: April 30, 2015

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

Part 21 Report No: P21-04302015

Subject: Report of potential 10CFR Part 21, Allen Bradley Timing Relay Model 700RTC

Pursuant to 10CFR 21.21 (d) (3) (ii), AZZ|NLI is providing written notification of the identification of a potential failure to comply.

On the basis of our evaluation, it is determined that AZZ|NLI does not have sufficient information to determine if the subject condition would, or has, created a Substantial Safety Hazard or would have created a Technical Specification Safety Limit violation as it relates to the subject plant applications.

The following information is required per 10CFR 21.21 (d) (4).

(i) Name and address of the individual or individuals informing the Commission.

Tracy Bolt, Director of Quality Assurance
Nuclear Logistics, Inc
7410 Pebble Drive
Ft. Worth, TX 76118

(ii) Identification of the facility, activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

The specific part which fails to comply or contains a defect:

As of 2009-2010, Allen Bradley relays base model 700RTC, contain an unevaluated CPLD (Complex Programmable Logic Device). This was an unpublished design change that was implemented to replace an obsolete integrated circuit chip. The undocumented design change did not result in a part number change from Allen-Bradley. There was no change to the appearance of the relay that would identify any design changes were made to the relay configuration. Therefore, NLI qualification/dedication of the relays after 2009 have not included additional testing for the new CPLD component.

The timing relay model 700RTC has been dedicated/qualified for multiple applications for various plants.

- (iii) **Identification of the firm constructing or supplying the basic component which fails to comply or contains a defect.**

NLI procured the commercial grade relays, dedicated, qualified and supplied the subject relays as Safety Related.

- (iv) **Nature of defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.**

Between 2009-2010 Allen Bradley made a design change without changing the part number of the commercial relay or providing any documented evidence of a design change. The manufacturer specification data sheets maintain the classification that the relays are "solid state", which would imply that there are no digital devices installed in the relay. However, after inspection of the internals of the timing relay (Figure 2), it has been identified that the unit does contain a CPLD which meets the definition of a digital device under the guidance of NEI 01-01. See Figures 1 and 2 below:

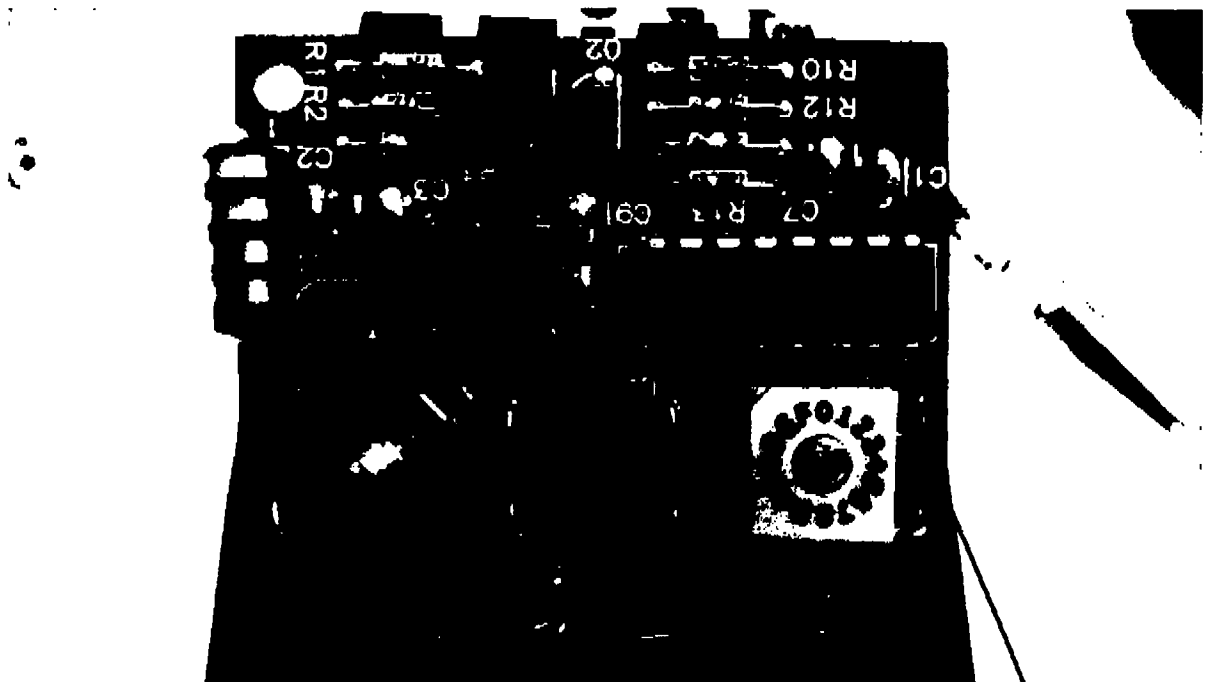


Figure 1- Original qualified design (prior to 2009).
Relays supplied prior to 2009 are not affected by this issue.

Original component

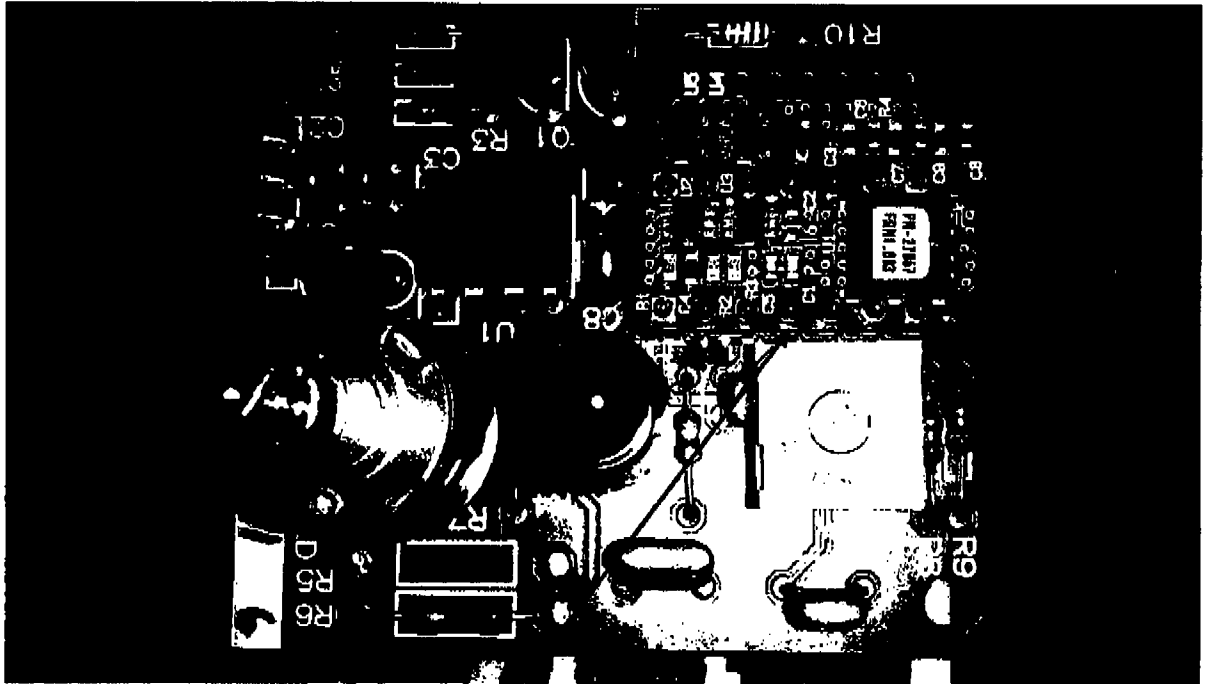


Figure 2 - New design circuit board and CPLD that replaced the original component.

(v) The date on which the information of such defect or failure to comply was obtained.

On April 27, 2015, enough information was gathered from the evaluations being performed to determine the reportability of the failure to comply that is the root cause for the event.

- (vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for being supplied for, or may be supplied for, manufactured or being manufactured for one or more facilities or activities subject to the regulations in this part.

Relays that have been procured and dedicated from 2009 to present are identified below.

	Plant Name	Purchase order	Serial Number
2	Browns Ferry	72923-1	29760-001-00003
1	Ginna Station	6617899	51475-001-00001 and -00002, 52656K1-01-0001
4	Grand Gulf	10304816	34182-001-00001
4	Grand Gulf	10400205	56319-001-00001
*	Invensys	4540224951	39228-001-00001 thru -00017
-	KHNP	Y12-0292-010	39407-001-00001 thru -00008, 39407-002-00001 thru -00005
-	Lungmen	8749411E007C0	38486-001-00001 and -00002, 38486-002-00001
1	Millstone	45735761	31998K1-01-0001
1	Millstone	45735761	31391-001-00001
1	Nine Mile Point	530734	63245-001-00001 thru -00018
2	North Anna	70239037	55133-001-00001 & -00002
2	North Anna	70239037	39602-001-00001 and -00002, 39602-002-00001 thru -00003
2	North Anna	70239037	40033-001-00001 and 40033-001-00002, 40033-002-00001 thru -00003
4	OPPD Ft Calhoun	155213	33846-001-00001 thru -00009, 33846-001-00011 thru 33846-001-00015, 33846-002-00002 & -00003
	OPPD Ft Calhoun	163495	35941-001-00001 thru -00004
	OPPD Ft Calhoun	164936	35891K1-01-0001 thru -0005
	OPPD Ft Calhoun	164936	36888-001-00001, -00003 thru -00005
	OPPD Ft Calhoun	164936	36888K2-01-0001
	OPPD Ft Calhoun	177878	39194-001-00001 thru -00006
	OPPD Ft Calhoun	182681	40743-001-00001 thru -00003, 40743-002-00001
7	OPPD Ft Calhoun	187625	51477-001-00001 thru -00004
3	Perry Station	45354401	33357-001-00001 thru -00003
4	River Bend Station	10349942	38585-001-00001 thru -00004
	River Bend Station	10362573	40077-001-00001
	River Bend Station	10378904	51627-001-00001
	South Texas Project	134783	33750-001-00001 & -00002
	South Texas Project	147962	37204-001-00001 thru -00006

4/	South Texas Project	154172	51592-001-00001 thru -00004
4/	South Texas Project	171193	57894-001-00001 thru -00006
2	St Lucie	Bechtel PO: 25486-974-FPA-EMR0-00001	38549-001-00002 thru -00005

- (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.**

The relays that are currently in stock at NLI have been placed on hold until after the units have been qualified for the specific application. NLI will perform EMC qualification testing per the requirements of EPRI TR-102323 Rev. 3 for the following tests, as applicable: CE101, CE102, RE101, RE102, RS101, RS103, CS101, CS114, CS115 and CS116. Estimated completion date is August 28, 2015.

- (viii) **Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.**

The functions of the relays supplied by NLI were tested for the following critical characteristics:

Pick-up at rated voltage
 Drop-out when the voltage is removed
 Pick-up at degraded voltage
 Over-Voltage operation
 Insulation resistance
 Off delay settings are adjustable from 2-120 seconds
 Pick-up voltage
 Drop-out voltage
 Dimensions and Configuration

The relays are dedicated for generic application usage in timing applications. The specific plant application(s) is unknown by AZZ. The EMC qualification of the relay is dependent on the installed configuration and location in the plant. The plant should evaluate whether the installed relays are subjected to unevaluated EMI/RFI conditions in the plant.

Please contact me with any questions or comments.

Sincerely,


 Tracy Bolt
 Director of Quality Assurance