

Licensee/Facility:

ALLEN-BRADLEY
Dominion
Glen Allen, Virginia
Dockets:

Notification:

MR Number: H-2005-0005
Date: 02/10/2005
Fax from Licensee

Subject: Part 21: Abnormal Allen-Bradley 700RTC Relay Contact Response

Discussion:

This morning report concerns an abnormal relay contact response which was observed during pre-installation testing of Allen-Bradley 700RTC relays at North Anna. The 700RTC relays are solid state timing relays, used as replacements for Agastat relays, in several safety related applications at North Anna.

The 700RTC relay provides a wide time adjustment with two timed contact positions and two instantaneous contact positions. The relays are ordered to a part number that specifies a certain contact arrangement, but the contacts are fully interchangeable and may be configured by the end user in any combination of Normally Open/Normally Closed (NO/NC). At North Anna, Allen-Bradley part number 700RTC11110U1 is used, which is a contact configuration of NO, NC, NO, NC.

The relays were setup and tested in a NO, NO, NC, NC configuration when it was discovered that the instantaneous contact (C5-C6 position), with a NC contact cartridge installed, behaved like a timed contact. The C5-C6 position changed state according to the setting of the timer. All other contact positions worked properly. With a NO contact installed in the C5-C6 position, the contact position behaved as expected (as an instantaneous contact). Different NC contact cartridges were installed in the C5-C6 position of the relay and the anomaly still occurred. Forty five (45) relays were tested for this anomaly. Twelve of 45 relays failed testing (C5-C6 with NC contact). The relays were returned to Allen-Bradley for failure analysis.

The root cause is unknown at this time, although Allen-Bradley has indicated that the sensitivity of the contact cartridges may be a factor in causing this response. North Anna is working with Allen-Bradley to determine a cause.

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