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INFORMATION NOTICE

ASCO has become aware that the practice of certain customers to use RTV 108C sealant to seal the solenoid enclosure of a safety related solenoid valve, indirectly resulted in an unexpected shifting of that valve to a de-energized position. The use of this sealant to seal the enclosure resulted in a degradation of the solder at the termination wire used in solenoid coils. The degradation of the termination will impact the performance of the safety related solenoid valve. Since ASCO is not able to determine if this could result in a significant Safety Hazard we are making you aware of this condition in order for you to evaluate your own applications and determine any potential impact on safety.

Background:

ASCO performed an investigation on an ASCO solenoid operated valve (SOV), model # NP8321A1E 125/DC. The reported issue was, "valve failed while in service by shifting to its de-energized state while it was energized". ASCO's evaluation, which included analysis of the solenoid components by a third party laboratory, determined that RTV 108C sealant, used to seal the conduit hub of the solenoid enclosure, out-gassed acetic acid vapors during the curing process. The out-gassing of these vapors led to a corrosive environment within the solenoid enclosure which attacked the solder connecting the coil lead wires to the coil magnet wire. The degradation of the solder connection eventually resulted in a detachment of the magnet wire from the lead wires. The resulting loss of electrical signal to the valve coil, unexpectedly caused the valve to shift to the de-energized position.

(NOTE: COIL LEAD WIRES WERE CUT TO REMOVE COIL)

IE09
IE20

ASCO

NRD

Impact on Performance:

ASCO has determined that degradation of the solder, caused by the corrosive environment in the solenoid enclosure from the outgassing of the sealant, leading to detachment of the lead wire / magnet wire connection, can result in the following:

(1) An unexpected shifting of the valve to the de-energized position, while energized, due to loss of the electrical signal to the coil.

(2) A failure to shift from the de-energized position to the energized position when an electrical signal is applied to the coil.

Although in the application this SOV was utilized, shifting of the valve to the de-energized position on loss of power was reported to be the fail-safe mode, ASCO has been made aware that there could be applications where the valve would be required to be energized to shift to its fail safe position. In this situation, if the degraded solder has broken the electrical connection; the valve will not respond to an electrical signal and will remain in its de-energized position.

Products Affected:

Any ASCO SOV, regardless of Model #, that has had the solenoid enclosure conduit sealed utilizing a sealant that will outgas acetic acid vapors, would be susceptible to degradation of the solder connecting the lead and magnet wires. Sealing of the conduit is not a practice approved of by ASCO. The I&M instructions, provided with every valve, state the following:

> **"To allow pressure equalization of the solenoid enclosure, run wiring through a conduit of suitable quality for the expected environment to a vented electrical junction box with suitable drainage. The conduit / junction box system should be pitched such that any accumulated moisture or LOCA spray will not run into the solenoid enclosure".**

What ASCO is Doing:

ASCO is issuing this **Information Notice** to notify users of the findings of our evaluation and to alert users that may have sealed solenoid enclosure conduits as described in the **Background** section, of the possible detrimental effects that can result from sealing the solenoid enclosure conduit in this manner.

What You Should Do:

ASCO continues to recommend that solenoid enclosure conduits not be sealed. Field methods of sealing the conduit with sealant are unnecessary if recommendations for conduit pitch and drainage from the I&M are followed.

Facilities should perform a review of their installation methods and procedures to determine if any installed valves have had the solenoid enclosure conduits sealed in the manner described. Any valves with enclosure conduits sealed in the manner described would be susceptible to the condition found in this evaluation and should be deemed suspect. ASCO is not aware of an electrical test that

could be performed that will effectively detect a condition where the solder has degraded, but has not yet led to a detachment of the wires. It is the responsibility of the individual users to determine any possible effect on safety if it is concluded that installed valves have had their solenoid enclosure sealed utilizing the method described in this notice and take the necessary steps to rectify the situation.

If you have any questions, please contact Michael Adase (803) 641-9345 (Michael.adase@emerson.com) or Robert Royer (803) 641-9394 (Robert.royer@emerson.com).

Thank you.

Sincerely,

Michael St Lenio

Mike Lenio
Director of Quality

84922

ASCO

REQUEST FOR MATERIAL TO BE SHIPPED

REQUESTED BY Mike Adase DATE 3/6/17

SHIP TO: US- Nuclear Regulatory Commission

ATTN: Document Control Desk

ADDRESS: 11545 Rockville Pike

Rockville, MD 20852

QUANTITY	DESCRIPTION OF MATERIAL
	documents
	please provide tracking number

This material must be shipped on or before _____

NOTE: The above material has been supplied to you against our purchase order # _____

Line # _____ for the manfacturer of our part # _____

Requisition # _____ Line # _____

☐ OUR TRUCK WILL PICK UP ☒ SHIP VIA overnight ☐ HOLD FIRM, WILL PICK UP

☐ DELIVER BY OUR TRUCK ☐ PREPAID ☐ COLLECT

DATE SHIPPED 3-6-17 SIGNED _____

WHITE COPY: Packing List - CANARY COPY: Return to Shipping - PINK COPY: Sender's - GOLDENROD COPY: Return to Purch./Acctg.

Form Aiken Purch 660 R10 - 11/00