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March 20th, 2013

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-001
Subject: NP8320 solenoid valve

Gentlemen,

ASCO received a valve NPK832067E 120/60 with serial number A482456-001 from our distributor, AREVA on 2/15/2013 because it would not shift when de-energized. Information accompanying the valve identified that it was operating for approximately three months since August 2012. The valve was manufactured in May 2010.

NP8320 valves are direct acting, 3-way valves for use as 1-E nuclear qualified valves. The returned valve is a normally open, stainless steel valve with EPDM elastomers (Figure 3, appendix). A normally open valve when pressurized at the inlet port (port 3) will have flow out of the cylinder (port 1) with the solenoid de-energized, as shown in Figure 4, appendix. The core is the magnetic component that moves when the solenoid is energized, opening the exhaust port. When the core moves, it allows a second disc to move, closing the pressure port. When the solenoid de-energizes, the spring attached to the core pushes it down, closing the exhaust port while pushing another disc, opening the pressure port. The core/spring assembly are separate components dedicated at nuclear assembly. ASCO has been manufacturing NP8320 valves since 1978.

The returned valve was tested per our test procedure. Pressure was applied to the inlet port (port 3, Figure 4), and no flow was observed through the cylinder port with the solenoid de-energized. When the solenoid was energized, no change of state occurred. There was no leakage through the cylinder port or exhaust port.

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The valve was dis-assembled and the spring was observed to be not on the core completely, reference Figure 1 for the as-found condition. Figure 2 shows the spring completely on the core.

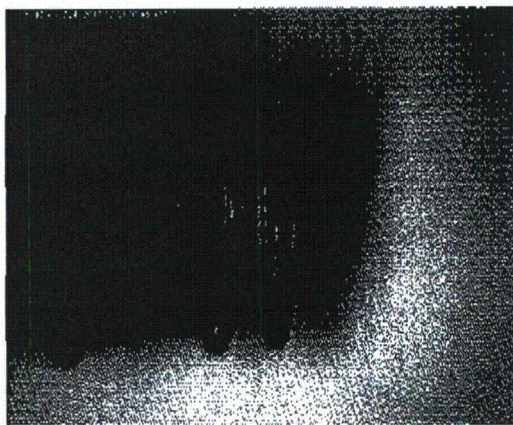


Figure 1

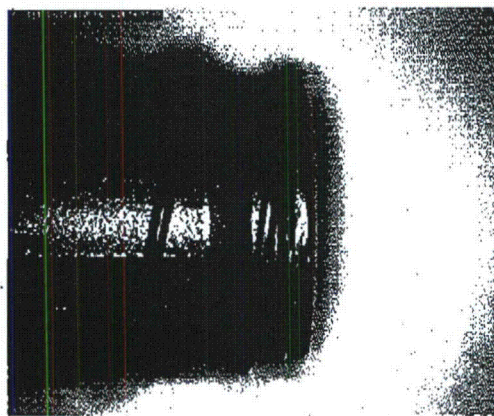


Figure 2

The valve was re-assembled with the spring properly on the core, as in Figure 2, and subjected to cycling. During cycle testing the second turn of the spring was shown to completely overlap the first turn coming over the edge of the core, pulling the first turn off of the core. The spring came completely off the core in 97 cycles.

ASCO identified that the spring was not properly manufactured as the beginning of the second turn was not wound to the same diameter of the first turn.

ASCO Investigation Results

ASCO and the spring supplier identified the manufacturing lot that was the source of the spring for serial number A483456-001. ASCO identified 10 nuclear valves (listed below) manufactured with this manufacturing lot. The remaining 3990 springs from this lot were used in commercial valves. ASCO uses this same spring in approximately 40,000+ commercial valves per year and no commercial returns have been found with the same condition of this spring coming off the core.

Neither ASCO's incoming inspection nor the spring manufacturer detected the nonconformance for this manufacturing lot.

ASCO evaluated other valves that used this same spring manufactured from other lots received in 2010. These valves represent a time period shortly before and shortly after the manufacture of the above valve. ASCO's investigation concluded that these springs are conforming.

Impact on Performance

This condition may cause the spring to work itself off the core and present a situation where the valve would not shift to its de-energized position. ASCO believes the condition would present itself relatively early into its cycle life.

Containment Action

ASCO has contacted the customer, AREVA, who received the 10 valves in question.

Valve Number	OB #	Serial #	Ship Date	Quantity
NPK8320067E120/60 A	321978	A482456-001* & -002	6/1/2010	2
NP8320094E120/60 DA	343886	A495347-001 to -004	8/19/2010	4
NP8320A183E120/60 DA	372486	A492726-001 to -004	9/14/2010	4

* Serial number A482456-001 is the subject valve.

Corrective Action

ASCO has implemented corrective actions to include inspection of the spring assembled to the core at nuclear dedication inspection to verify that the spring is properly seated and the second turn does not overlap the first at the springs working length.

ASCO does not have adequate knowledge of the actual installation and operating conditions of these valves to determine whether their malfunction could create a "substantial safety hazard" as defined in 10CFR21.3. We are providing this information to inform you of our investigation results, corrective action and customer notification.

If you have any questions, you can contact Bob Arnone at 803-641-9395.

Sincerely,


 Lars Gacad
 Vice President Quality Americas
 ASCO Valve Inc.

Appendix

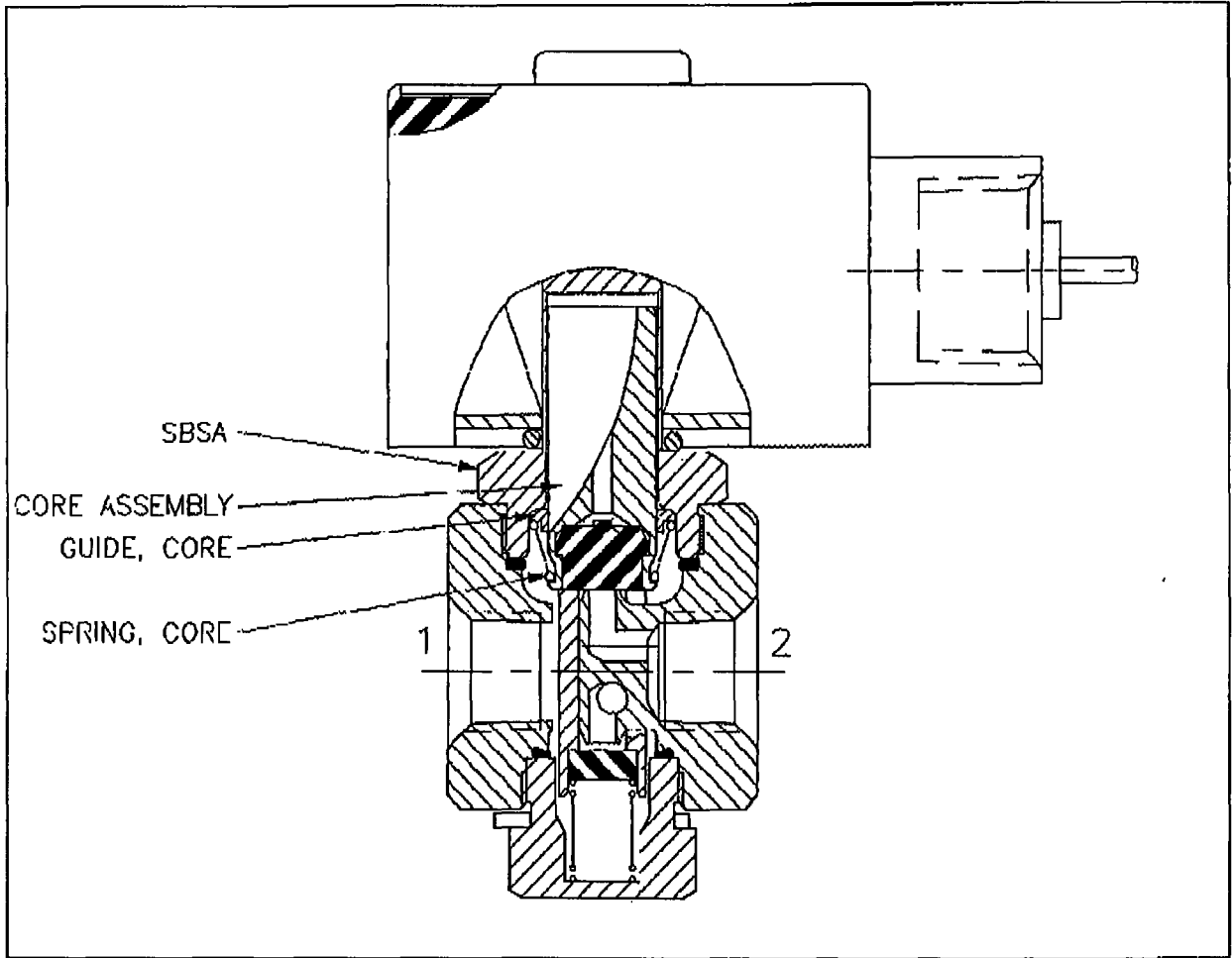


Figure 3

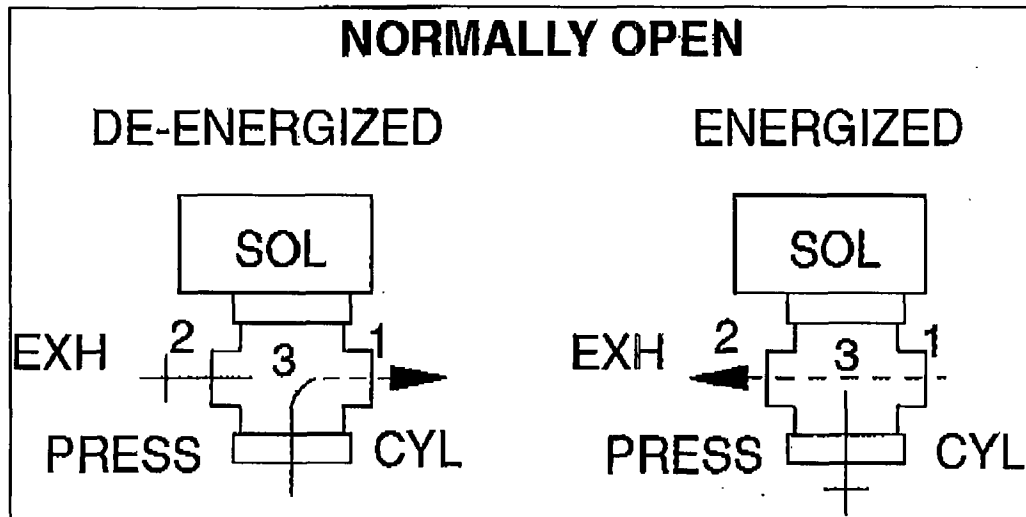


Figure 4



Facsimile

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To: **Document Control Desk** No. of Pages *(including cover sheet)*

Company:

Fax Number: **301-816-5151**

Date **20-Mar-2013**

From: **Bob Arnone – Sr. Technical Service Engineer**

Phone: **803-641-9395**

Comments: Attached is letter regarding evaluation of returned valve. If there are any questions, please call 803-641-9395

Sincerely,

A handwritten signature in cursive script that reads 'Bob Arnone'.

Bob Arnone
Sr. Technical Service Engineer