

General Information or Other (PAR)

Event # 46403

<b>Rep Org:</b> VELAN INC	<b>Notification Date / Time:</b> 11/08/2010 16:02 (EST)
<b>Supplier:</b> FLOWSERVE	<b>Event Date / Time:</b> 09/15/2010 (EST)
	<b>Last Modification:</b> 11/08/2010
<b>Region:</b>	<b>Docket #:</b>
<b>City:</b> QUEBEC, CANADA	<b>Agreement State:</b> No
<b>County:</b>	<b>License #:</b>
<b>State:</b>	
<b>NRC Notified by:</b> VICTOR APOSTOLESCU	<b>Notifications:</b> KATHLEEN O'DONOHUE R2DO
<b>HQ Ops Officer:</b> MARK ABRAMOVITZ	
<b>Emergency Class:</b> NON EMERGENCY	
<b>10 CFR Section:</b>	
21.21	UNSPECIFIED PARAGRAPH

## PART-21 REPORT - LIMITORQUE LIMIT SWITCH DEFECT

The following report was received via fax:

"During the performance testing of our valves equipped with Limatorque SMB-00 we found that the limit switch contacts proved to be defective. These tests took place in July 2010. Flowserve was advised and sent in replacement parts that were installed by their representatives. The valve-actuator assemblies were cycled and proper operation was assessed. These valves have been shipped to Dominion Virginia. At the time we considered the issue isolated and did not pursue an in-depth corrective action response from the Supplier.

"Later in September when testing three valves equipped with Limatorque SMB-00 and two valves equipped with Limatorque SMB-2-06, we found again that the limit switch contacts were defective, exhibiting similar problems as found earlier in July. These valves are still at our factory, awaiting the response and corrective action from Flowserve.

"The limit switch boxes (4 gear train limit switches, 16 sets of contacts) appear to be identical on the two types of actuators mentioned above.

"Upon closer examination, we determined that construction and installation elements appear poorly controlled, resulting in unexpected failure to operate due to the contact blade (called finger base by the Manufacturer) not returning to a position where it can make contact again. This was documented internally on a Velan internal deviation report on September 3, 2010.

"We advised Flowserve of our findings on September 15 and issued a formal Corrective Action Request (CAR 25500-73903) on September 16, 2010, with a deadline for responding that expired on October 26, 2010. After a

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number of follow-ups, we managed to make contact with responsible personnel at Flowserve on October 29. An evaluation report (electrical continuity test performed on sample switch assemblies cycled 2000 times) was submitted to our attention by Flowserve. However, we determined that the test did not answer all our concerns and requested Flowserve to provide additional information. Currently the supplier is engaged in retrieving the defective parts from our facilities and performing additional examinations and tests. The Manufacturer expects to have all necessary tests, examinations and evaluations completed on or before November 19, 2010.

"Based on functional testing performed at Velan we determined that we have no record of similar defects on valve-actuator assemblies produced prior to these events, we therefore believe that the root cause is relatively recent but there is no way to know until Flowserve analyzes and evaluates the deficiency.

"This type of defect has the potential to affect other valve manufacturers who may have installed Limitorque actuators equipped with this type of limit switch but we cannot say if such deviation could create a substantial safety hazard."

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November 8, 2010

U.S. Nuclear Regulatory Commission  
Document Control Desk

Washington, D.C. 20555-0001

Attention: Document Control Desk, via fax 301-816-5151

Subject: INTERIM REPORT  
Flowserve, Limit switch on Limatorque Actuators, Type SMB-00 and Type SMB-2-06

Gentlemen,

During the performance testing of our valves equipped with Limatorque SMB-00 we found that the limit switch contacts proved to be defective. These tests took place in July, 2010. Flowserve was advised and sent in replacement parts that were installed by their representatives. The valve-actuator assemblies were cycled and proper operation was assessed. These valves have been shipped to Dominion Virginia. At the time we considered the issue isolated and did not pursue an in-depth corrective action response from the Supplier.

Later in September when testing three valves equipped with Limatorque SMB-00 and two valves equipped with Limatorque SMB-2-06 we found again that the limit switch contacts were defective, exhibiting similar problems as found earlier in July. These valves are still at our factory, awaiting the response and corrective action from Flowserve.

The limit switch boxes (4 gear train limit switches, 16 sets of contacts) appear to be identical on the two types of actuators mentioned above.

Upon closer examination we determined that construction and installation elements appear poorly controlled, resulting in unexpected failure to operate due to the contact blade (called finger base by the Manufacturer) not returning to a position where it can make contact again. See attached picture. This was documented internally on a Velan internal deviation report on September 3, 2010.

We advised Flowserve of our findings on September 15 and issued a formal Corrective Action Request (CAR 25500-73903) on September 16, 2010, with a deadline for responding that expired on October 26, 2010. After a number of follow-ups we managed to make contact with responsible personnel at Flowserve on October 29. An evaluation report (electrical continuity test performed on sample switch assemblies cycled 2000 times) was submitted to our attention by Flowserve. However, we determined that the test did not answer all our concerns and requested Flowserve to provide additional information. Currently the Supplier is engaged in retrieving the defective parts from our facilities and performing additional examinations and tests. The Manufacturer expects to have all necessary tests, examinations and evaluations completed on or before November 19, 2010. Our contact at Flowserve is Mr. Jeff McConkey, Quality Assurance Manager at the Limatorque plant, tel. 434-845-9738.

Based on functional testing performed at Velan we determined that we have no record of similar defects on valve-actuator assemblies produced prior to these events; we therefore believe that the root cause is relatively recent but there is no way to know until Flowserve analyzes and evaluates the deficiency.

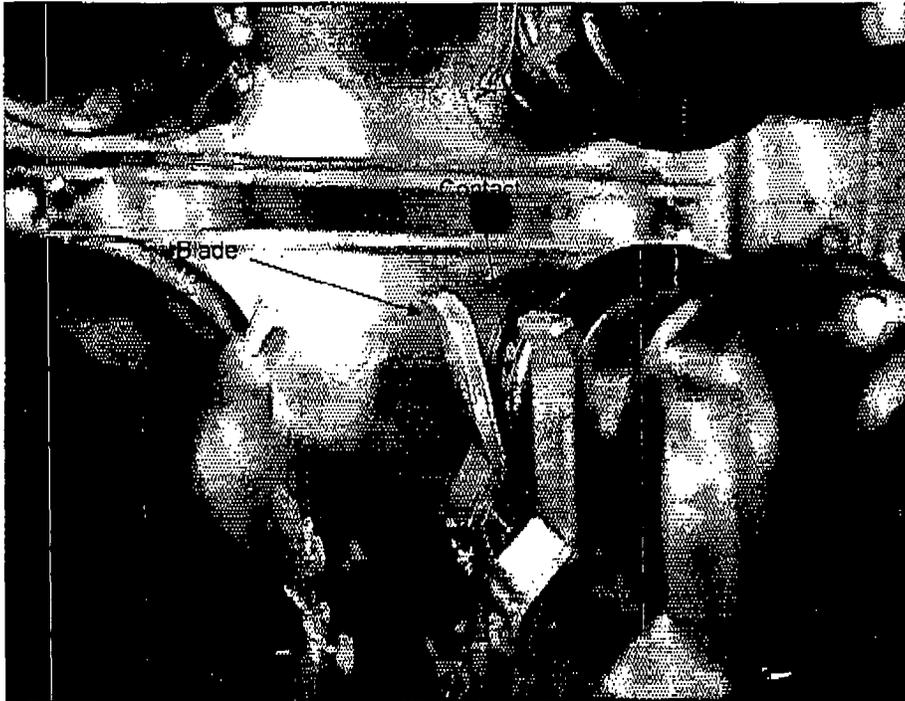
**CERTIFIED TO ISO 9001 QUALITY STANDARDS**

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This type of defect has the potential to affect other valve manufacturers who may have installed Limitorque actuators equipped with this type of limit switch but we cannot say if such deviation could create a substantial safety hazard.

We will update you as more information becomes available from Flowserve.



For any additional information on this matter please contact me at 514-748-7748 x 1134 or at [victor.apostolescu@velan.com](mailto:victor.apostolescu@velan.com).

Sincerely yours,

Velan Inc.

A handwritten signature in black ink, appearing to read "Victor Apostolescu".

Victor Apostolescu, Eng.  
Vice President Quality Assurance

cc: Flowserve – Jeff McConkey at 434-522-9831 and via e-mail  
Velan – T. Velan, I. Velan, G. Perez, Z. Palko (via e-mail)

**CERTIFIED TO ISO 9001 QUALITY STANDARDS**