Part 21 (PAR) Event # 49522

Rep Org: FLOWSERVE		**Notification Date / Time:** 11/08/2013 16:26	(EST)
Supplier: LIMITORQUE		**Event Date / Time:** 09/04/2013	(EST)
		Last Modification: 11/08/2013	
Region: 1	**Docket #:**		
City: LYNCHBURG	**Agreement State:**	Yes	
County:	**License #:**		
State: VA			
NRC Notified by: JEFF MCCONKEY	**Notifications:**	ALAN BLAMEY	R2DO
HQ Ops Officer: DONG HWA PARK		CHRISTINE LIPA	R3DO
Emergency Class: NON EMERGENCY		PART 21 GROUP	EMAIL
10 CFR Section:			
21.21(d)(3)(i) DEFECTS AND NONCOMPLIANCE			

PART 21 - MACHINING ERROR IDENTIFIED IN GEARED LIMIT SWITCHES

The following is a summary of information received from Flowserve via facsimile:

"On September 4, 2013, in-house inspection of Limitorque SMB Geared Limit Switch (GLS) cartridges revealed a machining error in a subcomponent used in the GLS. The deviation was caused by a dimensional error concerning the location of a drilled hole in a drive pinion shaft. This error results in a reduction of gear tooth engagement inside the GLS which could potentially reduce the service life of the GLS causing a loss of function. To date, Limitorque's investigation of this machining error has not shown this deviation to be significant enough to affect the safety related function of the GLS. However, Limitorque has requested all switches certified for nuclear safety related service which were manufactured in the designated time frame be returned for inspection and replacement as needed."

The components were sent to Perry Nuclear Generating Station.

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IE19
NRR

Part 21 (PAR) Event # 49522

Flowserve
5114 Woodall Road
Lynchburg, VA. 24502

Flowserve

To:	NRC Operations Center	**Fax:**	(301) 816-5151
From:	Jeff McConkey	**Date:**	11/8/2013
Re:		**Pages:**	3 including this cover sheet

☑ Urgent ☑ For Review ☐ Please Comment ☐ Please Reply ☐ Please Recycle

Notes: Limitorque Part 21 Notification Final Report Potential Defect in SMB Geared Limit Switch.

Thank You

Jeff McConkey
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FLOWSERVE

Flow Control Division
Limitorque

November 8, 2013

To: U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555-0001

Attention: NRC Operations Center, Fax # 301-816-5151

From: Flowserve Corporation
Limitorque
5114 Woodall Road
Lynchburg VA 24506

Subject: Limitorque Part 21 Notification Report
Potential Defect in SMB Geared Limit Switch

Description:

On September 4, 2013, in-house inspection of Limitorque SMB Geared Limit Switch (GLS) cartridges revealed a machining error in a subcomponent used in the GLS. The deviation was caused by a dimensional error concerning the location of a drilled hole in a drive pinion shaft. This error results in a reduction of gear tooth engagement inside the GLS which could potentially reduce the service life of the GLS causing a loss of function. To date, Limitorque's investigation of this machining error has not shown this deviation to be significant enough to affect the safety related function of the GLS. However, Limitorque has requested all switches certified for nuclear safety related service which were manufactured in the designated time frame be returned for inspection and replacement as needed.

Components Affected:

SMB/SB/SBD Geared Limit Switch (GLS) assemblies manufactured between August 12, 2013 and September 4, 2013 were potentially affected.

GLS assemblies which were built and shipped during this time frame are limited to the two orders identified below. The customers listed below have been notified.

Limitorque Order No: 132845.005
Customer: Areva Nuclear Parts Center
Customer P.O. #: 1013031247
Identifier: 2-train GLS, Part # 10153
Quantity Affected: 11
Location of Components
Qty (8) have been returned to Limitorque.
Qty (3) were shipped to OPG. At Limitorques request, Areva NP contacted OPG and the GLS assemblies have been returned for replacement.

FLOWSERVE

Flow Control Division
Limitorque

Limitorque Order No: 129231.001
Customer: Flowserve FCD – Raleigh, NC
Customer P.O. #: 201936
Identifier: 2-train GLS Part # 10144 installed in SMB-000 / HBC-0 actuators
Quantity Affected: 3 (Actuator Serial #s: 998306, 998307, 998308)
Location of Components

Actuators were shipped to FENOC, Perry NGS (Reference Perry P.O. # 454003386). Replacement of the GLS assemblies is in process. The MOVs have not been installed in the plant.

Cause and Corrective Action:

Limitorque QA investigation traced the potentially effected components to a single lot of drive pinions that was placed into Limitorque stock on August 12, 2013. Immediate corrective action involved 100% inspection of all drive pinions in stock. In addition, the drive pinions already installed in GLS assemblies in stock were inspected for the deviation. Limitorque has determined the cause of this machining deviation to be improper use of the drilling operation machining fixture for this component. An improved machining fixture for this subcomponent part has been designed and will be in place by Nov 30, 2013.

Technical questions related to the notification can be addressed to Kyle Ramsey, Chief Mechanical Engineer, Flowserve - Limitorque (kramsey@Flowserve.com)

Submitted By:

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