General Information or Other (PAR) Event # 44445

Rep Org:	EMERSON PROCESS MANAGEMENT	**Notification Date / Time:**	08/28/2008 13:48 (EDT)
Supplier:	FISHER CONTROLS INTERNATIONAL, LLC	**Event Date / Time:**	08/28/2008 (CDT)
		Last Modification:	08/28/2008
Region:	3	**Docket #:**	
City:	MARSHALLTOWN	**Agreement State:**	Yes
County:		**License #:**	
State:	IA		

NRC Notified by:	MATTHEW FARRELL	**Notifications:**	VIVIAN CAMPBELL	R4
HQ Ops Officer:	JASON KOZAL		PART 21 GROUP E-MAIL	
Emergency Class:	NON EMERGENCY		RAY POWELL	R1
10 CFR Section:			REBECCA NEASE	R2
21.21	UNSPECIFIED PARAGRAPH		MARK RING	R3

REPLACEMENT DIAPHRAGM FAILURES DUE INADEQUATE CURE AND OPERATION OVER MAXIMUM PRESSURE

"Fisher was recently notified by Luminant, Comanche Peak SES of two replacement diaphragm failures. These diaphragms had been in service for approximately 3.1 years.

"The diaphragms lost frictional flange retention in a progressive type failure which transferred retention stress to the bolt/diaphragm interfaces and caused localized stresses great enough to initiate rupture. Rupture propagation occurred catastrophically in multiple directions and rapid loss of actuator pressure resulted and consequently, opening of the valve."

This is applicable to all Fisher size 80, type 657 and 657NS sliding stem valve actuators sold to the nuclear industry by Fisher Controls International LLC that are equipped with nitrile/nylon diaphragms (Fisher part number 1R6375X0072). It is unknown what plants in addition to Comanche Peak are affected by this report.

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IE19
NRR

EMERSON
Process Management

FISHER

Facsimile

301 South First Avet
Marshalltown, IA 50158
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F 641-754-2645

To: NRC Operations Center

Fax: 301-816-5151
Dave A. Suk

From: Director, Quality Valves Worldwide

Date: August 28 2008

Pages: 1
(incl cover)

Attached is a copy of the Nuclear FIN Notice - FIN 1997-01 Supplement 1 issued August 27, 2008 from Emerson Process Management - Fisher Controls International LLC.

For questions please contact – Matthew Farrell
QA Manager
Codes & Standards
641-754-2381

EMERSON.
Process Management

Fisher Controls International LLC
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Fisher Information Notice: FIN 1997-01, Supplement 1

27 August 2008

Subject: Nitrile/nylon diaphragms (Fisher Part Number 1R6375X0072) used with the Fisher Size 80, Type 657 and 657NS pneumatic actuators.

From:

Bill Fitzgerald
Nuclear Business Unit Director
Fisher Controls International LLC
205 South Center Street
Marshalltown, IA 50158
Fax: (641) 754-2854

Equipment Affected By This Information Notice:

ALL FISHER SIZE 80, TYPE 657 AND 657NS SLIDING STEM VALVE ACTUATORS SOLD TO THE NUCLEAR INDUSTRY BY FISHER CONTROLS INTERNATIONAL LLC THAT ARE EQUIPPPED WITH NITRILE/NYLON DIAPHRAGMS (FISHER PART NUMBER 1R6375X0072)

Purpose:

The purpose of this Fisher Information Notice (FIN) is to alert customers that as of 25 June 2008, Fisher Controls International LLC became aware of a situation which may affect the performance of the applicable equipment.

We have informed our customers of record of this circumstance in accordance with 21.21 (b) of 10CFR21 because Fisher Controls International, Inc. is not aware of each and every application or system design and cannot determine whether an anomaly could cause a defect or "failure to comply," relating to a substantial safety hazard. In particular, this concern exists for instances in which a customer may have procured these diaphragms as commercial grade items.

Receipt of this notice does not necessarily mean that the recipient has been shipped any of the subject equipment. It is expected that the recipients of this notice will review the information for applicability to their facilities, and if required, take the appropriate action as described in the section at the end of this notice.

Applicability:

This notice applies only to the subject equipment supplied by Fisher Controls International LLC that meets any of the following criteria:

- All Size 80, Fisher Types 657 and 657NS actuators, regardless of ship date, and construction that are equipped with the subject Nitrile/nylon diaphragm.

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Fisher Information Notice: FIN 1997-01, Supplement 1

This notice only applies to the Fisher Nitrile/nylon diaphragms with part number 1R6375X0072. Other diaphragms (with unique Fisher part numbers) that can be used on the equipment (referenced above) are not considered to be part of this notice, including EPDM/NOMEX diaphragms.

Description of Possible Diaphragm Failure:

The subject spring and diaphragm actuators utilize an elastomeric, fabric-reinforced diaphragm to provide motive force to the valve stem. If the diaphragm fails, control of the process fluid is lost because the valve disc (plug) may no longer be correctly positioned by the actuator. A diaphragm failure will not impair the ability of the actuator to perform its spring-driven function of opening and remaining open.

Discussion:

Fisher was recently notified by Luminant, Comanche Peak SES of two replacement diaphragm failures. These diaphragms had been in service for approximately 3 ½ years.

The diaphragms lost frictional flange retention in a progressive type failure which transferred retention stress to the bolt/diaphragm interfaces and caused localized stresses great enough to initiate rupture. Rupture propagation occurred catastrophically in multiple directions and rapid loss of actuator pressure resulted and consequently, opening of the valve.

Loss of retention is believed to have occurred because:

1) The diaphragms were being overstressed and in a constant state of stress as these valves were being held closed in normal operation with a maximum pressure of 75 psig continuously. Note that the maximum pressure rating for the Size 80, 657 and 657NS actuator is 70 psig.
2) The diaphragm was not in a full state of cure. After investigating with our supplier, it was discovered that as curing occurs individually to each diaphragm in the compression mold, there is opportunity for variation, particularly when the molding process is interrupted for mold cleaning and mold temperature is not at equilibrium before resuming production. While mold time is precisely controlled by the operator at machine set-up, and mold temperature equilibrium is assured before beginning production, mold temperature was not closely controlled after an interruption in production.

As of 26 August 2008, appropriate controls have now been instated each time the production run is interrupted and at the beginning of each shift.

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Fisher Information Notice: FIN 1997-01, Supplement 1

Action Required

- Review equipment installation set up conditions to insure that the casing pressure remains below published limits (70 psig). This is necessary to maintain an adequate safety margin. It is recommended that the Nitrile/nylon diaphragms be switched to EPDM/NOMEX diaphragms where the diaphragms are subject to prolonged and constant exposure at or near the operating limits.
- No action is required for actuators that do not have the subject diaphragms (Fisher Part Numbers 1R6375X0072) installed.
- If the subject diaphragms have been installed, follow the instructions in the instruction manual and once more torque the diaphragm casing cap screws to 50 ft-lbs. Fisher recommends that the diaphragms be monitored on a regular basis for leakage and replaced during the next regularly scheduled maintenance period.
- If any of the subject diaphragms are in stock, contact your Fisher Local Business Partner for a warranty replacement.

10CFR21 Implications:

Fisher Controls requests that the recipient of this notice review it and take appropriate action in accordance with 10CFR21.

If there are any technical questions or concerns, please contact:

Michael Wedemeyer
Manager, Quality
Fisher Controls International LLC
205 South Center Street
Marshalltown, IA 50158
Fax: (641) 754-2854

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