Fisher Controls International, Inc.
205 South Center Street
Marshalltown, Iowa 50158
Phone 515/754-3011

FISHER

Fisher Controls

June 15, 1989

United States Nuclear Regulatory Commission
Division of Reactor Inspection and Safeguards
Washington, D.C. 20555

ATTENTION: Mr. Brian K. Grimes
Division of Reactor Inspection
and Safeguards

REFERENCE: Fisher Controls Anomaly Notice 89-1 & 89-2

Enclosed for your information are copies of Fisher Anomaly Notices advising of potential problems with the referenced equipment.

These notices have been sent to all nuclear utilities to request that they perform an evaluation to determine if a potential safety concern may exist under the reporting guidelines of 10CFR Part 21 and the U.S. Nuclear Regulatory Association.

These notices are provided to you for your information only, but if you have any questions with the notification please contact me.

Sincerely,

Denny Cahill

Denny Cahill
Manager, Quality Assurance
FCS Operations - Marshalltown

DC/ks

Enclosure

IE19

Fisher Controls International, Inc.
205 S. Center Street
Marshalltown, Iowa 50158

June 8, 1989

FISHER ANOMALY NOTICE NO. FAN 89-1

Subject:

ALL FISHER CONTROL VALVES OF THE FOLLOWING TYPES CONTAINING 316 STAINLESS STEEL MICRO-FLUTE OR MICRO-FLOW VALVE DISKS AND 316 STAINLESS STEEL VALVE SEATS THAT WERE SUPPLIED TO THE NUCLEAR INDUSTRY BY FISHER CONTROLS INTERNATIONAL, INC. PRIOR TO THE DATE OF THIS NOTICE.

TYPE NUMBER	SIZE RANGE
A	3/4" - 2"
DBQ	1/2" - 1"
DBQ-NS	1/2" - 1"
EAC	1/2" - 2"
EB	1" - 1 1/2"
EC	1/2" - 2"
EZ	1/2" - 2"

Addressees:

All U.S. Nuclear Facilities served by Fisher Controls Intl., Inc.

Purpose:

The purpose of this notice is to inform recipients of a potential design anomaly on the subject equipment. This anomaly could potentially affect the intended design function of the subject equipment and may therefore be reportable to the NRC in accordance with the provisions of 10 CFR Part 21.

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, Inc. that meet all of the following criteria:

1. Only Fisher valves of the following types and sizes are affected. All other valve types and sizes remain unaffected.

TYPE NUMBER	SIZE RANGE
A	3/4" - 2"
DBQ	1/2" - 1"
DBQ-NS	1/2" - 1"
EAC	1/2" - 2"
EB	1" - 1 1/2"
EC	1/2" - 2"
EZ	1/2" - 2"

2. Only those valves which meet the above criteria and which also contain 316 stainless steel micro-flute or micro-flow valve disks and a 316 stainless steel seat ring are affected.

3. Only those valves which meet all the above criteria and which were shipped prior to the date of this notice are affected.

Description of Anomaly:

The subject control valves all utilize a 316 stainless steel valve disk with a fluted or flat section on the disk which allows control of flow rates. These valve disks are guided by the tip on the valve disk which extends through the valve port in a 316 stainless steel seat.

This valve trim combination has been successfully sold by Fisher Controls International, Inc. (FCII) for many years in various commercial applications; however, Fisher has recently become aware that, in some applications, the valve disk and seat can experience serious galling which can potentially affect the ability of the valve to be stroked by the actuator.

Recommendation:

Fisher's recommended solution to this potential problem is to change either the material of the valve seat or the material of the valve disk guide tip from 316 stainless steel to a hardened material such as heat treated SA 5[illegible]-630 (17-4 PH), or to use materials such as cobalt-chrome Alloy 6 for the guide surfaces.

For all new orders or replacement orders subsequent to the date of this notice, it will be Fisher's policy to provide valve trim materials in the subject valves according to the following guidelines:

1. For all non-nuclear applications, as well as those nuclear, safety-related applications which involve non-ASME Section III Code valves, Fisher will supply seat rings of 316 stainless steel and valve disks which have cobalt-chrome Alloy 6 guide tips.

2. For all nuclear, safety-related applications which involve ASME Section III Code valves, Fisher will supply valve disks made of heat treated SA 564-630 (17-4 PH) and valve seats made of 316 stainless steel, or will supply a combination of 316 stainless steel valve disks and valve seats with cobalt-chrome Alloy 6 guide surfaces.

Action Required:

The recipient of this notice is required to review the information contained in this notice to determine its applicability to the recipient's facility.

If no valves meeting the applicability requirements listed above have been provided by Fisher Controls International, Inc., then no further action is required.

If the subject equipment has been supplied, then the recipient of this notice must determine if the subject equipment is safety related.

If the subject equipment is determined to be safety related, then the recipient of this notice must determine if the circumstances described in this notice could feasibly cause a substantial safety hazard to exist

If it is determined that the subject equipment is safety related, and if it is further determined that a substantial safety hazard exists, then the recipient of this notice must immediately provide written notice of this fact to Fisher Controls so that the proper 10 CFR Part 21 notification can be made to the NRC. This written notice should be addressed to:

Manager, Quality Assurance
Final Control Systems
Fisher Controls International, Inc.
205 South Center
Marshalltown, Iowa 50158

Fisher Controls International, Inc.
205 S. Center Street
Marshalltown, Iowa 50158

June 8, 1989

FISHER ANOMALY NOTICE NO. FAN 89-2

Subject:

FISHER ACTUATORS OF TYPE NUMBER SERIES 656, 657, 667, 1051, AND 1052 WITH TOP-MOUNTED HANDWHEELS WHICH MEET ALL OF THE APPLICABILITY REQUIREMENTS LISTED BELOW.

Addressees:

All U.S. Nuclear Facilities served by Fisher Controls Intl., Inc.

Purpose:

The purpose of this notice is to inform recipients of an operational limitation that must be placed on the subject equipment. Failure to observe this operational limitation could affect the intended design function of the subject equipment and may therefore be reportable to the NRC in accordance with the provisions of 10 CFR Part 21.

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, Inc. that meet all of the following criteria:

1. Only Fisher actuators of the following types and sizes are affected. (Other Fisher actuator types are unaffected.)

ACTUATOR TYPE NUMBERS	ACTUATOR SIZES
Type 656	All sizes
Type 656NS	Size 60
Type 657	All sizes
Type 657-4	Sizes 70 & 87
Type 657-8	All sizes
Type 657NS	Sizes 40, 45, & 70
Type 657R	All sizes
Type 667	All sizes
Type 667-4	Sizes 70 & 87
Type 667NS	Sizes 40, 45, & 70
Type 1051	All sizes
Type 1052	All sizes

2. Only those actuators which meet the above criteria and which also have top-mounted handwheels are affected.

3. Only those actuators which meet the above criteria and which were shipped prior to March 1, 1982 are affected by this notice.

Description of Anomaly:

Fisher Controls International, Inc. (FCII) has become aware that some owners of the subject equipment have attempted to use the top-mounted handwheel devices in a manner which was never intended by Fisher.

The top-mounted handwheel attachment to the subject actuators has been part of the Fisher product line for more than 30 years. It was initially provided by Fisher as a means of easily changing the physical travel limitation of the actuator without disassembly of the actuator. The original design of this handwheel had a 60° thread which was adequate to withstand the static loads imposed by the actuator spring, but the handwheel was never intended for stroking operation while under spring loads, except in cases of emergency. The intended operation of this handwheel was to cycle the valve to the desired position using instrument air on the actuator, and then the handwheel would be adjusted until the travel stop makes contact with the actuator diaphragm plate. Adjusting this handwheel while under the full spring load could cause premature wear and early failure of the lead screw threads.

On March 1, 1982 Fisher changed the design of these top-mounted handwheels to incorporate a standard ACME thread design, along with other minor improvements. The purpose of this design change was to extend the useful life of this handwheel when operated under full spring load conditions. This new design was qualified by tests under full-load conditions to meet Fisher auxiliary manual operator design cycle life requirements for operational capability of at least 300 full-stroke cycles under maximum load conditions. Operating this handwheel as a manual operator for a greater number of cycles while under full spring load could cause premature wear and early failure of the threads.

Discussion:

It is Fisher's opinion that thread failure in the top-mounted handwheel through improper use can in no way interfere with the safety-related operability of the power-operated control valve, which is achieved by action of the actuator spring upon release of instrument air to the actuator. It should also be noted that failure of this handwheel device would never occur during unattended operation of the valve; i.e., the operator would always be instantly aware of the failure.

Failure of the threads on this handwheel could only cause a safety-related problem if the valve assembly depended upon this handwheel device to operate as a manual actuator to provide safety-related operation of the valve. Fisher has other types of auxiliary manual operator designs which are normally recommended for this purpose.

Recommendation:

Fisher's recommended solution to this potential problem is for the recipient of this notice to ensure that operational limitations are placed upon the subject valves in order to prevent excessive wear and possible failure of the threads on the Fisher top-mounted handwheel. The following operational limitations must be observed.

It must be ensured that the original version of these handwheels (i.e., those with the 60° thread which were shipped prior to March 1, 1982) are never adjusted under full spring load conditions (i.e., used as a manual actuator) except under emergency conditions on a very limited number of occasions.

It must be ensured that the newer design of these handwheels (i.e., those with the ACME thread design which were shipped subsequent to March 1, 1982) are limited to 300 cycles or less when used as a manual operator.

If the recipient of this notice wishes to replace handwheels of the original design with the newer handwheels, or if the recipient wishes to replace handwheels of the newer design with another alternative, currently under development, which is capable of providing continuous service as a manual operator, the local Fisher Representative's office should be contacted for details.

Action Required:

The recipient of this notice is required to review the information contained in this notice to determine its applicability to the recipient's facility.

If no actuators meeting the above applicability requirements have been provided by Fisher Controls International, Inc., then no further action is required.

If the subject equipment has been supplied, then the recipient of this notice must determine if the subject equipment is safety related.

If the subject equipment is determined to be safety related, then the recipient of this notice must determine if the circumstances described in this notice could feasibly cause a substantial safety hazard to exist.

If it is determined that the subject equipment is safety related, and if it is further determined that establishment of the recommended operational limitations are insufficient to prevent a substantial safety hazard from existing, then the recipient of this notice must immediately provide written notice of this fact to Fisher Controls so that the proper 10 CFR Part 21 notification can be made to the NRC. This written notice should be addressed to:

Manager, Quality Assurance
Final Control Systems
Fisher Controls International, Inc.
205 South Center
Marshalltown, Iowa 50158