FLOWSERVE

Flow Control Division

August 23, 2001

U.S. Nuclear Regulatory Commission
Attn: Linda Joy Smith
611 Ryan Plaza Drive
Arlington, TX 76011

Subject: Borg-Warner 3" and 4" Swing Check Valves

Dear Linda:

As we discussed over the last few weeks, Arizona Public Service advised Flowserve that a 4"-1500# Swing Check Valve didn't perform properly for the same reason that was earlier reported as a 10CFR21 on a 4"-150# Swing Check Valve. A copy of the original report is attached.

Also attached is a copy of the letters sent to all customers who received either 3" or 4" Swing Check Valves of any pressure class during the time when the problem may have occurred. These are submitted per your request.

Please advise if there are any additional questions.

FLOWSERVE CORPORATION
Flow Control Division

G.W. Knieser
Technical Manager

Attachments

cc: USNRC, Document Control Desk, Washington, DC ✓

GWK/dc

Flowserve FCD Corporation
A Unit of Flowserve Corporation
Flow Control Division

Williamsport Operations
P.O. Box 3428 701 First Street
Williamsport, PA 17701-0428

Phone 570 327 4800
Facsimile 570 327 4805
www.flowserve.com

IE19

BW/IP International, Inc.

Byron Jackson® Pumps
United Centrifugal™ Pumps
Pump Division

P.O. Box 2017 Terminal Annex
Los Angeles California 90051

Telephone 213 587 5171
Telex 677233
Fax 213 589 2080

12 February 1993

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

Gentlemen:

This letter transmits a notification of defects and nonconformances required by 10CFR - Part 21. The attached notification, CFRN-9301, reports a condition which occurred at Texas Utilities, Comanche Peak Steam Electric Station.

Very truly yours,

D. A. Gibson
Manager Nuclear Products Operations

DAG/ah

Attach.

cc: Mr. K. B. Lemmon, Manager, Field Service Operations
Mr. R. D. Ham, Manager of Quality
Mr. F. Costanzo, Manager of Engineering
Mr. K. A. Huber, Technical Liaison
Mr. W. A. Klenner, Product Manager

10 CFR PART 21 NOTIFICATION

(Reference No. CFRN-9301)

NAME AND ADDRESS OF THE INDIVIDUAL OR INDIVIDUALS INFORMING THE COMMISSION:

Mr. D. A. Gibson
BW/IP International, Inc.
Pump Division
Los Angeles Operation
2300 E. Vernon Avenue
Vernon, CA 90058
(213) 587-6171

For Technical Information Contact: Dr. Kent Huber

IDENTIFICATION OF THE FACILITY, THE ACTIVITY, OR THE BASIC COMPONENT SUPPLIED FOR SUCH FACILITY OR SUCH ACTIVITY WITHIN THE UNITED STATES WHICH FAILS TO COMPLY OR CONTAINS A DEFECT:

Texas Utilities, Comanche Peak Steam Electric Station.
Basic Component: 4-inch 150# Bolted Bonnet Swing Check Valve
BW/IP Part No. 75580
TU Tag Nos. 2CC-0697 & 2CC-0693

IDENTIFICATION OF THE FIRM CONSTRUCTING THE FACILITY OR SUPPLYING THE BASIC COMPONENT WHICH FAILS TO COMPLY OR CONTAINS A DEFECT:

BW/IP International, Inc.
Successor to:

Borg-Warner Nuclear Valve Division
7500 Tyrone Avenue
Van Nuys, CA 91409

10 CFR, Part 21, Notification
(Ref. No. CFRN-9301)

NATURE OF THE DEFECT OR FAILURE TO COMPLY AND THE SAFETY HAZARD WHICH IS CREATED OR COULD BE CREATED BY SUCH DEFECT OR FAILURE TO COMPLY:

Valve 2CC-0697 did not fully close during pre-operational testing. Radiographs taken at the time of failure show the disk positioned at approximately 21° from the full closed position. The valve was disassembled. The top of the disk was found to be lodged under the seat lip preventing full closure. Valve 2CC-0693 subsequently failed testing in a similar manner. Both valves are located in the Component Cooling Water return lines from the Reactor Coolant Pump Motor Coolers and do not serve an active safety function. However the failure mechanism could apply to other valves that do provide a safety function.

Evaluation of the basic component by BW/IP indicates the root cause of the failure to close is due to the configuration of the attachment weld between the disk to the stud. Prior to 1977, this weld was placed on the back surface of the stud and extended into the bushing bore. In disks manufactured after 1977, the weld was recessed into the back surface of the disk and a final machine cut made to assure a flush surface.

THE DATE ON WHICH THE INFORMATION OF SUCH DEFECT OR FAILURE TO COMPLY WAS OBTAINED:

The incident was initially reported to BW/IP on 18 December 1992. Additional information has subsequently been supplied by Texas Utilities.

IN THE CASE OF A BASIC COMPONENT WHICH CONTAINS A DEFECT OR FAILS TO COMPLY, THE NUMBER AND LOCATION OF ALL SUCH COMPONENTS IN USE AT, SUPPLIED FOR, OR BEING SUPPLIED FOR ONE OR MORE FACILITIES OR ACTIVITIES SUBJECT TO THE REGULATIONS IN THIS PART:

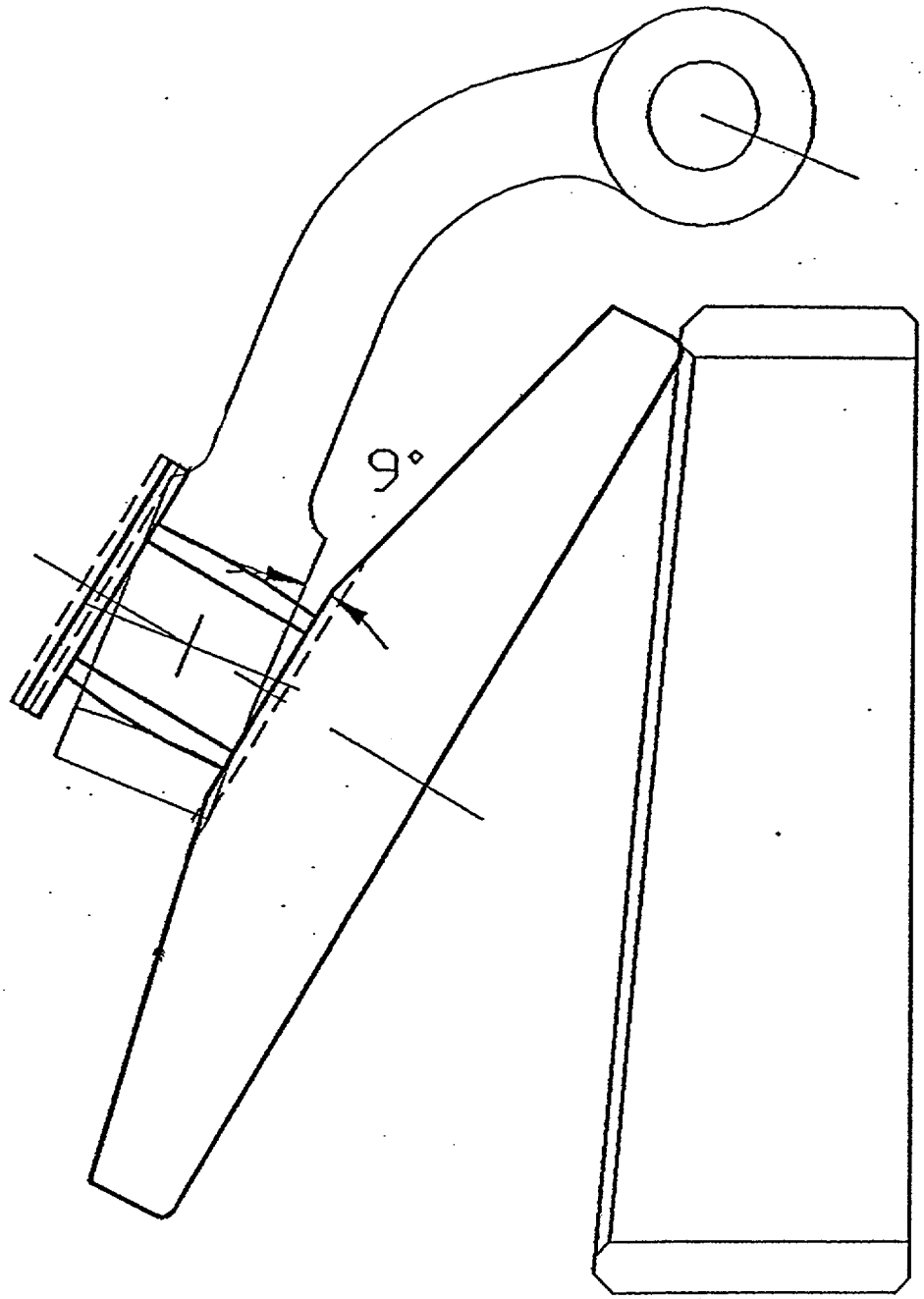
This notice applies to all BW/IP 4-inch, 150#, bolted bonnet swing check valves which have a raised disk-stud retention weld on the back surface of the disk.

THE CORRECTIVE ACTION WHICH HAS BEEN, IS BEING, OR WILL BE TAKEN; THE NAME OF THE INDIVIDUAL OR ORGANIZATION RESPONSIBLE FOR THE ACTION; AND THE LENGTH OF TIME THAT HAS BEEN OR WILL BE TAKEN TO COMPLETE THE ACTION:

Corrective action is complete with the disk design modification identified above.

ANY ADVICE RELATED TO THE DEFECT OR FAILURE TO COMPLY ABOUT THE FACILITY, ACTIVITY, OR BASIC COMPONENT THAT HAS BEEN, IS BEING, OR WILL BE GIVEN TO PURCHASERS:

Licensees with valve installations effected by this notice should install a new disk component or refurbish the existing disk.



Required Angle of Disc Rotation and Axial Gap for Interference

FLOWSERVE

Flow Control Division

August 14, 2001

Edison Material - Songs
P.O. Box 128
Clemente, CA 92674-0128

Attn: Manager, Nuclear Oversight Division

Subject: Borg-Warner 3" & 4" Swing Check Valves

Dear Sirs:

On February 12, 1993, BW/IP, Los Angeles, California issued the enclosed 10CFRPart 21 report to the NRC describing a nonconforming condition with Borg-Warner 4"-150# bolted bonnet swing check valves. Some disc assemblies were shipped with an excessive stud-to-disc weld that could keep the disc washer too far from the back of the disc and consequently permit excessive angular movement of the disc. This could result in the top of the disc catching in the seat ring bore and preventing the valve from closing. The design was revised in 1977 so the only affected valves and spare part disc assemblies were those furnished in 1977 or earlier.

Subsequent to the report, BW/IP determined the problems was not limited to that single design but potentially extended to all Borg-Warner 3" and 4" swing check designs. It is not clear that all utilities were advised of this.

On May 31, 2001, Arizona Public Service Co. advised Flowserve that they recently encountered the same problem on a 4"-1500# pressure seal swing check valve. Because of this, Flowserve decided it would be prudent to notify or re-notify all customers who purchased 3" or 4" swing check valves or disc assemblies in 1977 or earlier of the potential problem. We recommend the valves be inspected at the earliest convenient time and if evidence of interference is found, replace the disc assembly. The enclosed sketch depicts the potential problem if there is excessive disc angular movement.

Flowserve is not aware of exactly how all of these valves are being used by the utilities and therefore has not been able to determine the safety significance of the problem. Please contact either Dan Hall (570-327-4866) or George Knieser (570-327-4811) if Flowserve can assist you in any way.

FLOWSERVE CORPORATION
Flow Control Division

Charlene E. Fitzgerald
Contract Administrator

CEF/dc

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FLOWSERVE

Flow Control Division

August 14, 2001

Arizona Public Service Company
P.O. Box 52034
Mail Station 7990
Phoenix, AZ 85072-2034

Attn: Procurement Engineering Section Leader

Subject: Borg-Warner 3" & 4" Swing Check Valves

Dear Sirs:

On February 12, 1993, BW/IP, Los Angeles, California issued the enclosed 10CFRPart 21 report to the NRC describing a nonconforming condition with Borg-Warner 4"-150# bolted bonnet swing check valves. Some disc assemblies were shipped with an excessive stud-to-disc weld that could keep the disc washer too far from the back of the disc and consequently permit excessive angular movement of the disc. This could result in the top of the disc catching in the seat ring bore and preventing the valve from closing. The design was revised in 1977 so the only affected valves and spare part disc assemblies were those furnished in 1977 or earlier.

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Flow Control Division

August 14, 2001

TXU Electric Company - CPSES
P.O. Box 1002
Glen Rose, TX 76043

Attn: Lance Terry, Group Vice President - Nuclear

Subject: Borg-Warner 3" & 4" Swing Check Valves

Dear Mr. Terry:

On February 12, 1993, BW/IP, Los Angeles, California issued the enclosed 10CFRPart 21 report to the NRC describing a nonconforming condition with Borg-Warner 4"-150# bolted bonnet swing check valves. Some disc assemblies were shipped with an excessive stud-to-disc weld that could keep the disc washer too far from the back of the disc and consequently permit excessive angular movement of the disc. This could result in the top of the disc catching in the seat ring bore and preventing the valve from closing. The design was revised in 1977 so the only affected valves and spare part disc assemblies were those furnished in 1977 or earlier.

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FLOWSERVE

Flow Control Division

August 14, 2001

Florida Power & Light
P.O. Box 14000
Juno Beach, FL 33408

Attn: R.A. Symes, Supervisor of Performance Assessment

Subject: Borg-Warner 3" & 4" Swing Check Valves

Dear Mr. Symes:

On February 12, 1993, BW/IP, Los Angeles, California issued the enclosed 10CFRPart 21 report to the NRC describing a nonconforming condition with Borg-Warner 4"-150# bolted bonnet swing check valves. Some disc assemblies were shipped with an excessive stud-to-disc weld that could keep the disc washer too far from the back of the disc and consequently permit excessive angular movement of the disc. This could result in the top of the disc catching in the seat ring bore and preventing the valve from closing. The design was revised in 1977 so the only affected valves and spare part disc assemblies were those furnished in 1977 or earlier.

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FLOWSERVE

Flow Control Division

August 14, 2001

Duke Energy Corporation
P.O. Box 1006
Charlotte, NC 28201-1006

Attn: Manager, Operating Experience
Assessment Group, M/S EC05P

Subject: Borg-Warner 3" & 4" Swing Check Valves

Dear Sirs:

On February 12, 1993, BW/IP, Los Angeles, California issued the enclosed 10CFRPart 21 report to the NRC describing a nonconforming condition with Borg-Warner 4"-150# bolted bonnet swing check valves. Some disc assemblies were shipped with an excessive stud-to-disc weld that could keep the disc washer too far from the back of the disc and consequently permit excessive angular movement of the disc. This could result in the top of the disc catching in the seat ring bore and preventing the valve from closing. The design was revised in 1977 so the only affected valves and spare part disc assemblies were those furnished in 1977 or earlier.

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H.L. Patterson
Sr. Contract Administrator

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Flow Control Division

August 14, 2001

Entergy Operations, Inc.
1448 S.R. 333
Russellville, AR 72801

Attn: Mr. Lloyd Magness

Subject: Borg-Warner 3" & 4" Swing Check Valves

Dear Mr. Magness:

On February 12, 1993, BW/IP, Los Angeles, California issued the enclosed 10CFRPart 21 report to the NRC describing a nonconforming condition with Borg-Warner 4"-150# bolted bonnet swing check valves. Some disc assemblies were shipped with an excessive stud-to-disc weld that could keep the disc washer too far from the back of the disc and consequently permit excessive angular movement of the disc. This could result in the top of the disc catching in the seat ring bore and preventing the valve from closing. The design was revised in 1977 so the only affected valves and spare part disc assemblies were those furnished in 1977 or earlier.

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FLOWSERVE CORPORATION
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HLPatterson

H.L. Patterson
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Flow Control Division

August 14, 2001

Knolls Atomic Power Laboratory
Kesselring Site Operation
350 Atomic Project Road
Ballston Spa, NY 12020-2817

Attn: Mr. David Couse

Subject: Borg-Warner 3" & 4" Swing Check Valves

Dear Mr. Couse:

On February 12, 1993, BW/IP, Los Angeles, California issued the enclosed 10CFRPart 21 report to the NRC describing a nonconforming condition with Borg-Warner 4"-150# bolted bonnet swing check valves. Some disc assemblies were shipped with an excessive stud-to-disc weld that could keep the disc washer too far from the back of the disc and consequently permit excessive angular movement of the disc. This could result in the top of the disc catching in the seat ring bore and preventing the valve from closing. The design was revised in 1977 so the only affected valves and spare part disc assemblies were those furnished in 1977 or earlier.

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FLOWSERVE

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August 14, 2001

Nuklearna Elektrarna Krsko
8270 Krsko, Vrbina 12
Slovenia

Attn: M. Novsak, Engineering Director

Subject: Borg-Warner 3" & 4" Swing Check Valves

Dear Mr. Novsak:

On February 12, 1993, BW/IP, Los Angeles, California issued the enclosed 10CFRPart 21 report to the NRC describing a nonconforming condition with Borg-Warner 4"-150# bolted bonnet swing check valves. Some disc assemblies were shipped with an excessive stud-to-disc weld that could keep the disc washer too far from the back of the disc and consequently permit excessive angular movement of the disc. This could result in the top of the disc catching in the seat ring bore and preventing the valve from closing. The design was revised in 1977 so the only affected valves and spare part disc assemblies were those furnished in 1977 or earlier.

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August 14, 2001

Rochester Gas & Electric
Ginna Station
1503 Lake Road
Ontario, NY 14519

Attn: Mr. Mike Burchell

Subject: Borg-Warner 3" & 4" Swing Check Valves

Dear Mr. Burchell:

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August 14, 2001

Tennessee Valley Authority
Nuclear Assurance and Licensing
1101 Market Street
Chattanooga, TN 37402-2801

Attn: Manager, Operating Experience

Subject: Borg-Warner 3" & 4" Swing Check Valves

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