



Commonwealth Edison
Byron Nuclear Station
4450 North German Church Road
Byron, Illinois 61010

DMB

March 21, 1985

LTR: BYRON 85-0426

SUBJECT: Notification of Possibly Defective Airline Check Valves in Byron
Unit One (Docket Number 50-454) Main Steam Isolation Valve
Actuators

Mr. James G. Keppler
Regional Administrator
Region III
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60157

Dear Mr. Keppler:

This letter is to confirm our initial (3-19-85) notification concerning possibly defective check valves within the air systems of our Main Steam Isolation Valve (MSIV) actuators (Anchor-Darling Co. Drawing Numbers 94-14060 and 94-14061). This report is submitted pursuant to 10CFR 21.21(b)(2).

On 3-14-85, two of Byron's Unit One Anchor-Darling Valve Co; double disc gate, Main Steam Isolation Valves failed to fully close upon receipt of a steamline isolation signal. This event occurred approximately 30-40 minutes after the Station Air/Instrument Air Compressor tripped during the loss of offsite power startup test. This loss of Instrument Air resulted in a slow depressurization of the air supply to the MSIV actuators. More information regarding this event will be supplied in License Event Report Number 85-027-00.

Subsequent investigation (documented on 3-18-85 by CEC Co Discrepancy Record Number 06-85-0106) showed that several of the MSIV actuator airline check valves failed to seat when subjected to a slow supply side pressure drop. These check valves are manufactured by Parker-Hannifin Co. and supplied by Anchor-Darling Valve Co. (Anchor-Darling Co. Part Number W30261) as a basic component of the MSIV actuators. In the event that instrument air supply pressure is lost, these check valves must seat in order to maintain the actuator's stored air charge which is necessary to achieve MSIV closure.

Working in conjunction with an Anchor-Darling Valve Co. Field Service Representative, the immediate corrective action taken after this discovery was to bench test the eight installed airline check valves along with eleven new check valves from Byron's spare parts inventory. Although all nineteen check valves successfully seated when subjected to a rapid supply side pressure drop, only eight seated when subjected to a slow depressurization. These eight have been installed on the Unit One MSIV actuators. These check valves are identified in Parker-Hannifin Co. literature as "Barstock Inline Check Valves, C Series, Catalog 2502". A general description of the check valve is that it's a Barstock Inline Check Valve with soft elastomer poppet seal and a 5 psi cracking pressure.

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Following the installation of the bench tested check valves, each MSIV was subjected to a full stroke test. The test 1) isolated the instrument air supply, 2) initiated a slow depressurization of the air system between the supply isolation valve and airline check valves for one (1) hour, then 3) closed the valve. All four Main Steam Isolation Valves stroked fully closed in less than two seconds.

All four Unit One MSIV actuators will be retested following the 25% power, plant trip startup test, or one month from the previous test, whichever is sooner. Thereafter, they will be tested monthly until a permanent resolution is agreed upon. This testing will initiate a slow depressurization of the actuator air system between the check valves and supply valve and then verify seating of the airline check valves by either 1) MSIV closure, or 2) direct monitoring of the MSIV actuators stored air charge pressure.

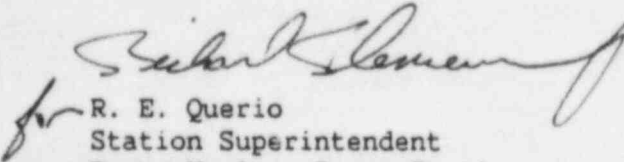
Plans are currently being made to have Commonwealth Edison's Operational Analysis Department inspect some of the check valves that failed the initial bench testing. These inspections should help determine what, if any, failure mode exists.

A followup meeting has been scheduled with representatives of Anchor-Darling Valve to review this event on March 25, 1985. As of this date, Commonwealth Edison knows of thirty-two (32) such airline check valves in use at Byron and Braidwood Stations (eight check valves per unit).

We recommend that utilities review the application of Parker-Hannifin check valves to determine if a slow, depressurization could prevent the safety actuator from performing its intended safety function.

A supplemental report will be provided within 60 days describing progress that has been made in our investigation of this event.

Sincerely,


for R. E. Querio
Station Superintendent
Byron Nuclear Power Station

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