Commonwealth Edison Company
1400 Opus Place
Downers Grove, IL 60515

ComEd

November 2, 1995

Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attn: Document Control Desk

SUBJECT: Response to Request for Additional Information
Regarding Inservice Testing Program For Pumps (Rev. 10a)
and Valves (Rev. 13a)
Byron Station Units 1 and 2
NRC Docket Numbers: 50-454 and 50-455

REFERENCES:
1. Harold D. Pontious, Jr. (ComEd) letter to the USNRC Document Control Desk transmitting Revision 13a of Byron's Inservice Testing Program for Valves and Revision 10a of Byron's Inservice Testing Program for Pumps, dated September 8, 1995.

2. George F. Dick (USNRC) letter to D.L. Farrar (ComEd) transmitting a Request For Additional Information regarding Revisions to the Inservice Programs for Pumps and Valves, dated October 31, 1995.

In a September 8, 1995, letter to the Nuclear Regulatory Commission Commonwealth Edison Company (ComEd)requested approval for a relief request to perform acoustic monitoring of the Essential Service Water Makeup Pump Discharge check valves for the closed position on an eighteen month frequency (Reference 1). In the Nuclear Regulatory Commission's letter of October 31, 1995, (Reference 2), a request for additional information (RAI) was transmitted to ComEd regarding Byron Station's Inservice Testing Program for Pumps (10a) and Inservice Testing Program for Valves (13a). Attached is ComEd's response to those questions.

If you have any questions concerning this correspondence, please contact this office.

Sincerely,

Marcia T. Lesniak

Marcia T. Lesniak
Nuclear Licensing Administrator

Attachment

cc: G. Dick, Byron Project Manager-NRR
H. Peterson, Senior Resident Inspector-Byron
H. Miller, Regional Administrator-RIII
Office of Nuclear Safety-IDNS

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Attachment

NRC Question #1: What is the risk significance and safety significance of the Essential Service Water makeup pump discharge check valves failing to close?

Byron Response:

A. The failure of these check valves to close is considered a non-risk significant event due to the redundant equipment available to ensure that the basins will retain their inventory and receive makeup cooling water, as required. The failure of these check valves to close is not specifically modeled in the PRA. When evaluating risk, all safety and non-safety related equipment available for mitigating the event, is reviewed. If one of these valves fails to close and backleakage occurs, the line could be isolated from the basin by closure of a manual valve next to the check valve (not tested by IST) or MOVs near the entry into the basin (not tested by IST). An alternate way to overcome the leakage would be to start up the pump on the line with the defective valve. Finally, there are alternate ways to makeup to the SX basins, which include the non-safety related Circulating Water makeup lines or the non-safety related, but seismically qualified, Deep Well Water makeup lines. During normal operation, Circulating Water is the preferred method of makeup to the basin. Additionally, the two SX basins overflow into each other at a level of 64%.

B. The safety significance of these check valves failing to close would result in a potential for piping drain down from the basins to the river screen house, approximately 5 miles away from the plant. The safety-related SX makeup pumps are the emergency source of makeup to the basins. If an SX pump is called upon to operate in a post-accident situation, it is desirable to avoid the potential delay involved in transporting water to the basin to ensure that the ultimate heat sink analysis remains valid. The ultimate heat sink consists of the two essential service water mechanical draft cooling towers and the makeup system to these cooling towers. The elevation difference of approximately 200 feet between the river and the SX basins make this a possibility.

The SX basins should not be drained to a point of concern even if one of the makeup check valves did fail. During normal operations, the SX "A" and "B" basin levels are maintained at approximately 82%, with makeup generally coming from the non-safety related Circulating Water pumps. At 64% level, the SX basins overflow into one another. If the level in one basin reaches 56%, an alarm is received in the Control Room and automatic makeup from the respective SX makeup pump begins at 53% level. Even if the alarms and automatic makeup failed, the SX makeup lines enter the basin at a level near the Technical Specification limit of 50%, ensuring that significant levels will remain in the basins. Additionally, either train of SX makeup would be capable of supplying the basins with enough water to satisfy the ultimate heat sink analysis. In the unlikely event that the downstream piping of an SX Makeup Pump were to completely drain, the pump suction at the river would have enough suction

head to allow the refilling of the downstream piping and establishment of makeup to the SX basin without extraordinary operator actions or damage to the SX Makeup Pump. The failure of one of these check valves to close would be minimal and easily overcome.

NRC Question #2: The submittal states that the valves have operated approximately 10 years without failure. Because they are in the service water system, it is expected that they are in an erosive/corrosive environment. Is there a regular preventative maintenance program on the valves?

Byron Response:

Currently, Byron's assessment of this valve is solely based on the testing performed on the valve. The open valve position is tested quarterly with full flow during each pump run. An acoustic test is used to prove closure. This test is currently performed quarterly, during the same surveillance, when the pump is shut down. Due to the elevation differences between the piping discharging into the basin and the much lower elevation of the river screen house (location of the SX makeup pump discharge check valves), a good signal is recorded for the closure of these check valves.

A maintenance history review of these SX discharge check valves has indicated that maintenance has been nonexistent since startup on these valves. There are no past or present work requests for them. However, due to the corrosive nature of the SX system, Byron plans on beginning a program to disassemble and inspect a series of SX check valves associated with maintaining the ultimate heat sink water inventory (included are the "A" and "B" train IST check valves for isolating Circulating Water makeup, "A" and "B" train IST check valves for isolating the Deep Well Water makeup, and the SX makeup check valves discussed in VR-29). Byron currently has internal parts for the first valve disassembly, but is waiting for a valve body to arrive. This would allow a quick disassembly and replacement necessitated by LCOAR time requirements. If a rebuild is required, maintenance personnel could do this without the time pressures involved with the LCOAR. This program will begin shortly after the arrival of the valve body (replacement would most likely occur during the 1st quarter of 1996). Following the inspection of these valves, the results will be reviewed to determine an optimum disassembly interval. Based on the good test results obtained for the SX discharge check valves for closure and the fact that they have not failed in over 10 years, these check valves may be inspected last in the rotation. These disassembly and inspections will be highly dependent on the availability of parts and appropriate plant conditions, but completion of this rotation would be expected within the next few years.

NRC Question #3: The submittal indicates that it takes the acoustic technician one full day for each test (assuming one day per quarter for both valves, not one day for each valve equaling two full days). Therefore, for four days per year, the technician is involved in monitoring these valves (hence the question on risk significance). Please explain how these four days fit into the technician's overall activities. If the technician is dedicated to acoustic monitoring, then monitoring these valves four times a year may not be a hardship.

Byron Response:

- First, to clarify, the acoustic monitoring technician spends approximately 8 full days a year on this testing, one full day for each individual pump run. A typical test day would begin down at the river screen house, setting up, coordinating with Operations and the System Engineer for running the test. The afternoon would typically be spent evaluating the data and completing the surveillances.

  Byron's Check Valve Program resides in the Site Engineering Programs group. Individuals within this group generally have multiple responsibilities assigned to them. One responsibility of the Check Valve Coordinator is to perform acoustic tests on check valves, where applicable. In addition, this individual is responsible for maintaining a Check Valve Program of over 500 valves (with plans to review another 2000 balance of plant check valves). Additional tasks of the individual who has recently become the Check Valve Coordinator includes the ASME Pressure Test Program. Byron does not have an individual who is totally dedicated to acoustic monitoring. The individual who performs this testing will always have other collateral duties which will consume a considerable amount of time. Hence, it is desired to test components such as these check valves at a frequency which is commensurate to their level of safety to ensure all activities receive the appropriate level of attention.