Commonwealth Edison
1400 Opus Place
Downers Grove, Illinois 60515

August 18, 1992

Dr. Thomas E. Murley, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

ATTN: Document Control Desk

Subject: Byron Station Units 1 and 2
Response to Audit of Effectiveness of Safety-Related Check Valve Programs (TAC NOS. M81019 and M81020)
NRC Docket Nos. 50-454 and 50-455

References: 1. A.H. Hsia letter to T.J. Kovach dated October 25, 1991
2. T.K. Schuster letter to Dr. T.E. Murley dated November 27, 1991

Dear Dr. Murley:

Reference 1 transmitted the results of an audit conducted by the Nuclear Regulatory Commission (NRC) from July 8 through 12, 1991, at Byron Station. Based on the results of the audit, the NRC Staff concluded that the check valve programs at Byron Station appeared to be comprehensive, well thought out, and organized with management involvement. The audit report did, however, identify five concerns regarding the Byron SOER Check Valve Program which were summarized on Attachment 2 of the subject report. The concerns are as follows:

**NRC CONCERNS**

1. The NRC Staff found that the RH pump discharge check valves, 1/2RH8730A&B were inadvertently omitted from the SOER Check Valve Program.

2. The NRC was concerned that the pressure integrity of the diesel generator starting air system dryers could be lost during a seismic event based on preliminary information available during the audit. It was requested that either documentation be provided to demonstrate that the dryers were capable of retaining pressure during and after a seismic event, or begin pressure decay testing of the SA181 check valves since they would be depended upon to provide isolation.

3. Six containment isolation valves greater than two inches (1/2PY8046 and 1/2WO007A&B) were in the IST program but not in the SOER Check Valve Program. The NRC Staff recommended that these valves be reviewed by the licensee using the same criteria as applied to the valves in the check valve program to ensure consistent treatment and handling.



ZNLD/1114/65

A001
1/0

4. Sixty-six other valves (two inches and under) were in the IST program, but not in the SOER Check Valve Program. The NRC Staff requested that Byron consider using additional criteria, such as system cleanliness, operational frequencies, and water chemistry when evaluating safety significant valves for possible inclusion in the SOER Program.

5. Corporate Nuclear Operations Directive (NOD-TS.9) allowed the use of the IST program testing as an indicator of check valve degradation in lieu of disassembly and inspection or diagnostic testing. The NRC Staff requested justification for using the IST program for this purpose.

**CECo RESPONSE**

Concerns 1 and 2 have been satisfactorily resolved as described in Reference 2.

Concerns 3, 4, and 5, although identified at Byron, are generic in nature and have been reviewed from a programmatic standpoint at all six stations. The resolutions of these concerns are as follows:

Concern 3: The six containment isolation valves in question at Byron have been reviewed using the same criteria as applied to valves already in the check valve program. Byron Station and our Corporate Nuclear Engineering Department (NED) have determined that these valves will be assigned a Level B Priority (diagnostic testing required) and be included in the check valve program for Unit 2, Refueling Outage #4 (B2R04), in September, 1993; and Unit 1, Refueling Outage #6 (B1R06), in September, 1994.

A population of similar valves (greater than two inches; in the IST program but not in the check valve program) have been identified at each of the other five stations. Each Station, with NED assistance, will assign an appropriate priority level for each of these valves (using the check valve program criteria) and incorporate them into the respective Station's SOER Check Valve Program for refueling outages starting after January 1, 1994.

Concern 4: The sixty-six valves in question at Byron were reviewed considering the following criteria:

1. System cleanliness (stagnation, silt conditions)
2. Susceptibility to corrosion (materials of construction, water chemistry)
3. Safety Significance
4. Valve failure history - this criteria was used as indicator of valve problems due to:

    a. Flow stability (location with respect to turbulence)
    b. System severity (operational frequencies and flow transients)
    c. Valve design (type, size, etc.)

Based on these criteria, Byron Station and NED have determined that all 70 valves (four additional valves were identified during the review) will be added to the SOER Check Valve Program. These valves were further evaluated, focusing on safety significance of a potential failure and actual failure history, and placed in one of four groups:

1. High safety significance - high failure history (Priority Level A or B)
2. High safety significance - low failure history (Priority Level C)
3. Low safety significance - high failure history (Priority Level C)
4. Low safety significance - low failure history (Priority Level C)

Valves in Group 1 will be assigned either a Level A Priority (disassembly and visual inspection required) or Level B Priority (diagnostic testing required). Valves in Groups 2, 3, and 4 will be assigned a Level C Priority (maintenance history review required every refueling outage). One valve at Byron was placed in Group 1 and assigned a Level A Priority. The remaining 69 valves were placed in either Group 2, 3, or 4 and assigned a Level C Priority. These valves will be included in the check valve program for Unit 2, Refueling Outage #4 (B2R04), in September, 1993; and Unit 1, Refueling Outage #6 (B1R06), in September, 1994.

A population of similar valves (two inches and under; in the IST program but not in the SOER Check Valve Program) have been identified at each of the other five stations. Each Station, with NED assistance, will assign an appropriate priority level for each of these valves using the methodology described above. Other criteria, such as ALARA considerations, may also be used in determining the appropriate priority level. These valves will be incorporated into the respective Stations's SOER Check Valve Program for refueling outages starting after January 1, 1994.

Concern 5: Corporate Nuclear Operations Directive, NOD-TS.3, (Revision 1), "Check Valve Program", currently allows deferral of check valve program inspections based on successful ISI/IST testing (Note: This applies only to containment isolation check valves and pressure isolation check valves that are required to be leak tested and full stroke exercised in accordance with ASME Section XI). Step 5.2.3.1.a currently states: "For Level A valves, inspections required by the check valve program may be deferred until the ISI/IST tests indicate the need for repair." Step 5.2.3.1.b also states: "For Level B valves, the ISI/IST activities (leak tested and full stroke exercised) may be performed in lieu of a diagnostic testing."

NED and our Corporate Inservice Inspection/Materials Group have reviewed this policy and concluded that full stroke testing and leak rate trends cannot be used definitively to predict check valve degradation. It is therefore inappropriate to defer inspections required by the check valve program as a result of a successful IST program test.

It is worthy to note that in certain cases, leak rate testing provides the ability to detect seat degradation whereas visual inspections and diagnostic testing may not. Leak rate testing also offers the ability to detect other kinds of check valve degradation depending on the type of valve and its construction. CECo will therefore continue to use leak rate testing as a valuable evaluation tool, however, NED will issue a letter to clarify the use of leak rate testing by January 1, 1993. NOD-TS.9 will also be revised to clarify this position and delete the statements regarding deferral of check valve program inspections and diagnostic testing in lieu of IST testing by January 1, 1994.

Commonwealth Edison Company appreciates the NRC Staff's insights and comments regarding our SOER Check Valve Program and believes that all concerns expressed in the subject inspection report (Reference 1) have now been adequately addressed and resolved. Please address any further questions to this office.

Very truly yours,

D. J. Chrzanowski

David J. Chrzanowski
Nuclear Licensing Administrator