Commonwealth Edison
1400 Opus Place
Downers Grove, Illinois 60515

July 6, 1990

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

Subject: Byron Station Units 1 and 2
Relief Requests Related to Implementation
Of Generic Letter 89-04 Guidance
NRC Docket Nos. 50-454 and 50-455

Reference: (a) Generic Letter 89-04, dated April 3, 1989
(b) T.K. Schuster (CECo) letter to U.S. NRC, dated June 29, 1990

Dear Sir:

Generic Letter 89-04 was issued to provide guidance to licensees on frequently identified weaknesses of Inservice Testing (IST) Programs. Reference (b) provided the schedule for completion of check valve testing implementation procedure revisions to comply with the requirements of Generic Letter 89-04. Reference (b) also stated that IST program relief requests would be sent to the NRC staff on July 6, 1990. The intent of this letter is to satisfy that commitment.

Two "Draft Relief Requests" are enclosed that identify a number of check valves for which Commonwealth Edison believes alternate methods of testing to those specified in Generic Letter 89-04 are warranted and justifiable. Specifically, in lieu of disassembly of four Residual Heat Removal check valves that require seal weld removal, Draft Relief Request VR-21 proposes to back flow test each valve every refueling outage and valve replacement every 10 years. Draft Relief Request VR-22 proposes alternate methods of testing for certain safety injection valves which could, under the requirements of Generic Letter 89-04, either require a total off load of the reactor core to perform disassembly or would require installation of flow indication modifications which would decrease the reliability of the safety

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injection system. An expedited review of these two Draft Relief Requests is requested prior to the Unit 2 refueling outage this fall. In order that procedure preparation and outage planning may be completed prior to the outage, it is requested the review be completed prior to August 15, 1990.

Please direct any questions that you have regarding this letter to this office.

Very truly yours,

T.K. Schuster
Nuclear Licensing Administrator

Enclosures

cc: A. Bert Davis-Regional Administrator, RIII
Resident Inspector-Byron
T. Boyce-NRR Project Manager

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ENCLOSURE

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RELIEF REQUEST VR-21

1. Valve Numbers: 1/2RH8705A 1/2RH8705B

2. Number of Items: 4

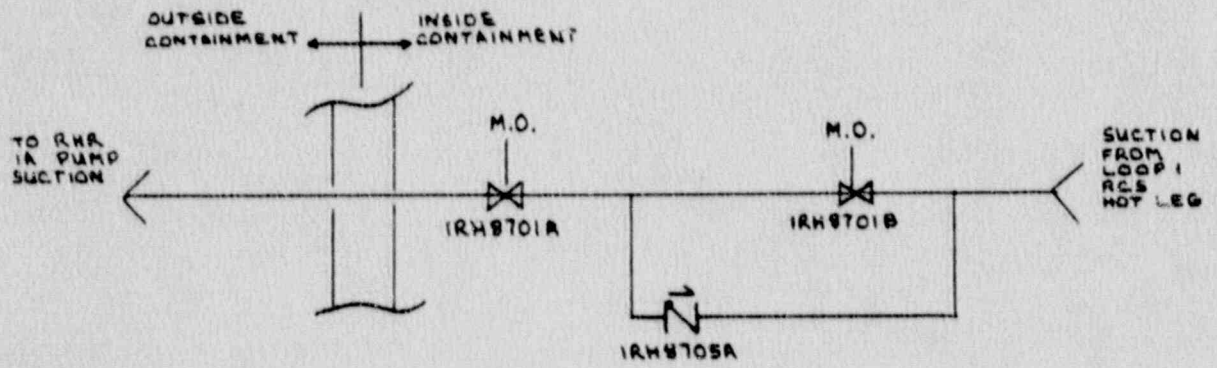
3. ASME Code Category: AC

4. ASME Code, Section XI Requirements:

Exercise check valves to the position required to fulfill their function (open = Ct; closed = Bt), unless such operation is not practical during plant operation, per IWV-3522.

5. Basis for Relief:

The check valves are 3/4" angle valves with a seal welded bonnet. They are located in the containment building inside the missile barrier. In the open direction they serve to relieve any built-up pressure between 1/2RH8701A and 1/2RH8701B (or 1/2RH8702A and 1/2RH8702B) which may be present when the valves are closed. The relief of this pressure is to the Reactor Coolant System (RCS) (normally at 2235 psig) and insures that there is not a differential pressure across the inboard isolation valve (1/2RH8701A or 1/2RH8702A) from the RCS side, which would cause the isolation valve to bind. See sketch below:



Note: Sketch shown is for 1RH8705A. Arrangement is similar for 1RH8705B, 2RH8705A, and 2RH8705B.

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* In the closed direction, the check valves serve as part of *
* the containment isolation boundary. These check valves *
* are tested closed each refueling outage as part of the *
* Appendix J Local Leak Rate Tests. See IST Program Relief *
* Requests VR-1 and VR-18 for related information. *
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RELIEF REQUEST VR-21

These check valves cannot be safely tested open during normal operations or refueling outages due to the back pressure of the RCS on the check valve discharge piping. Since flowrates cannot be verified, the alternative required by NRC Generic Letter 89-04 is disassembly and inspection.

Disassembly of these check valves would require: (1) removal of the bonnet seal weld, (2) placement of a freeze seal on the check valve discharge piping, (3) removal from service on one RH train (1 of 2 shutdown cooling trains out-of-service), and (4) replacement of the check valve. Operational experience has shown that performing the bonnet seal weld on small diameter check valves in the field causes the seats to warp and subsequently the valve leaks.

6. Alternate Testing:

Check valves 1/2RH8705A/B will be backflow tested (Bt) once each refuel outage, as noted in IST Program Relief Request VR-18. Byron Station will remove, inspect, and replace check valves 1/2RH8705A/B once every 10 years (once/ISI interval), in order to satisfy the full stroke testing (Ct) requirement of NRC Generic Letter 89-04.

7. Justification:

Decreasing the full stroke testing frequency of check valves 1/2RH8705A/B to once every 10 years will verify the operational readiness of these valves to open without causing safety concerns due to replacing the valves each refuel outage. These concerns include possible binding of the valve disk due to bonnet seal welding, freeze seal work on one of two available shutdown cooling RH trains, possible leakage due to welding on unisolatable sections of RH piping, and increased personal radiation exposure. A maintenance history search (TJM) at Byron and Braidwood Nuclear Power Stations for the 1/2RH8705A & B valves shows no previous history of work on these valves.

8. Applicable Time Period:

This relief is requested once per quarter during the first inspection interval.

9. Approval Status:

Since this relief request is a new submittal and is not specifically addressed in NRC Generic Letter 89-04, it is NOT approved for use. Formal written approval from the NRC is required prior to implementation. Expeditious review and approval is requested.

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RELIEF REQUEST VR-22

1. Valve Numbers:

1/2SI8818A	1/2SI8948A	1/2SI8841A
1/2SI8818B	1/2SI8948B	1/2SI8841B
1/2SI8818C	1/2SI8948C	
1/2SI8818D	1/2SI8948D	

2. Number of Items: 20

3. ASME Code Category: AC

4. ASME Code, Section XI Requirements:

Exercise check valves to the position required to fulfill their function (open = Ct; closed = Bt), unless such operation is not practical during plant operations, per IWV-3522. Byron Station's testing methodology meets this requirement. However, NRC Generic Letter 89-04, Attachment 1, Position 1 requires that the flow through individual valves be known, and specifically states that knowledge of total flow through multiple lines does not provide verification of flow rates through the individual valves and is not a valid full-stroke exercise.

5. Basis for Relief:

The current Byron Station testing methodology uses available flowmeters to measure the total flow through two parallel check valves. These are given below:

CHECK VALVES	FLOW INDICATION
1SI8818A & 1SI8818D	1FI - 618
1SI8818B & 1SI8818C	1FI - 619
1SI8841A & 1SI8841B	1FI - 618
1SI8948A & 1SI8948D	1FI - 618
1SI8948B & 1SI8948C	1FI - 619

There is currently no method available to measure the flow rates through the individual check valves. Modifications to these lines to install flow measurement devices for the individual valves is not warranted due to the following reasons:

A. Flow indications exist for each pair of check valves. It would be readily apparent from the flowrates recorded during each refuel outage if individual check valves were not opening or were only partially opening by comparing the flowrates recorded through each pair of check valves.

B. Byron Station Technical Specifications disregard the highest branch line flowrate when determining the minimum required flowrates through these parallel injection lines. Therefore, slight differences in individual branch flowrates which could exist by measuring the total flowrate through two parallel injection lines was anticipated and accounted for when Byron Station's Technical Specifications were formulated.

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C. Installation of individual injection line flow indicators would pose an increased safety hazard to operation of the plant due to installation of additional instrument lines, welds, and valves which are unisolatable from the Reactor Coolant System. This modification would increase the probability of small break LOCA's (due to pipe/weld/valve failures), forced outages (due to leaking valves/welds) and degradation of plant equipment (due to boric acid leaks).

D. A modification to install such indications would be expensive, increase radiation dose, and possibly impact safe operation of the plant. The modification would require extensive engineering and installation costs, along with replacement power costs, to install. Byron Station Technical Specifications require an ECCS full-flow balance test to be performed as part of the modification test. This test would extend outage durations and require a complete core offload to perform. Several man-rem would be expended on each unit to install this modification. This modification would have to be installed during an outage by use of individual injection line freeze seals and/or complete core offload. Both of these activities pose an increased safety hazard to plant personnel and equipment, by requiring unusual system alignments for extended periods of time during a refuel outage when other activities inside containment are at their highest level.

The alternative to individual check valve flowrate measurement required by NRC Generic Letter 89-04 is disassembly and inspection. Disassembly and inspection is not a viable option for the ECCS injection line check valves due to the following concerns:

A. Radiation Dose:
The radiation dose increase to disassemble, inspect, and reassemble these check valves each refuel outage would be several man-rem.

B. Safe Operation:
A total core offload and Reactor Coolant System drain down or individual injection line freeze seals would be required each outage in order to perform these inspections. These actions place the plant in unusual operating line-ups for extended periods of time and decrease the availability of shutdown cooling options. These actions increase the probability of loss of residual heat removal capabilities by depending on freeze seals to isolate RCS branch connections during refueling outages.

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C. Check Valve Operating History:
A search of maintenance history (TJM) on these valves for both Byron and Braidwood Nuclear Power Stations revealed the following past maintenance activities on these check valves:

1/2SI8818A	None
1/2SI8818B	None
1/2SI8818C	None
1/2SI8818D	None
1/2SI8841A	None
1/2SI8841B	None
1/2SI8948A	None
1SI8948B	Replaced disc arm assembly and gasket, retorqued flange bolts 10/20/84 (Byron)
2SI8948B	None
1SI8948C	Inspected internals, no parts repaired or replaced, retorqued flange bolts 9/10/84 (Byron)
2SI8948C	None
1/2SI8948D	None

This history does not indicate any adverse operating history for these valves; therefore, disassembly and inspection of these valves is not warranted based on previous maintenance history.

6. Alternative Testing:

In lieu of disassembly, Byron Station proposes the following tests (which are already being performed):

A. A full stroke test of each check valve is verified at least once per 18 months during refuel outages by verifying the total flow through each set of two parallel check valves utilizing existing permanently installed flow indicators.

B. A seat leakage test of each check valve is performed as required by Byron Station's Technical Specification on RCS leakage. These leak tests are performed:

1) At least once/18 months,
2) Prior to Mode 2, whenever the plant has been in COLD SHUTDOWN for 72 hours and if leakage testing has not been performed in the previous nine (9) months,
3) Prior to returning the valve to service following maintenance, repair, or replacement work on the valve, and
4) Within 24 hours following valve actuation due to automatic or manual action or flow through the valve.

C. An ECCS full flow balance test is performed following the completion of modifications to the ECCS subsystems that alter the subsystem flow characteristics as required by Byron Station Technical Specifications.

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7. Justification:

Byron Station's Technical Specifications require these check valves to be full stroke tested and seat leakage tested at a minimum frequency of once per 18 months. These tests satisfy all of the ASME check valve exercise requirements (open and close) and all of the NRC Generic Letter 89-04 full-stroke and backflow testing requirements, except that flow is measured through pairs of injection line check valves instead of individual injection line check valves.

The burden imposed by either disassembly and inspection or modification of these check valves to comply with the NRC Generic Letter 89-04 individual flow measurement requirement is costly in terms of capital expense, radiation dose, and possibly safe operation of the plant during refueling operations. This burden is unjustified, based on the fact that Byron Station has previously received a favorable Safety Evaluation Report (SER) on its Inservice Testing Program after years of in-depth review by the NRC. Also, it is readily apparent that Byron Station was not originally designed to allow for either individual injection line flow measurement or for disassembly and inspection of the injection line check valves on a regular basis without extreme hardship on plant operations and maintenance during critical refueling outage periods.

The current testing requirements of Byron Station Technical Specifications for these check valves will adequately monitor their performance and any future degradation, and maintain safe operation of the plant.

8. Applicable Time Period:

This relief is requested once per quarter during the first inspection interval.

9. Approval Status:

Since this relief request is a new submittal and is not specifically allowed by NRC Generic Letter 89-04, it is NOT approved for use. Formal written approval from the NRC is required prior to implementation. Expeditious review and approval is requested.