



Commonwealth Edison
1400 Opus Place
Downers Grove, Illinois 60515

December 6, 1990

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

ATTN: Document Control Desk

Subject: Zion Station Units 1 and 2
Byron Station Units 1 and 2
Braidwood Station Units 1 and 2
Response to Generic Letter 90-06
NRC Docket Nos. 60-295/304,
50-454/455, and 50-456/457

Reference: Generic Letter 90-06, dated June 25, 1990

Dear Sir:

The NRC issued Generic Letter 90-06 to advise pressurized water reactor (PWR) licensees of the NRC Staff's position resulting from the resolution of Generic Issues (GIs) 70 and 94.

Generic Issue 70 evaluates the reliability of Power Operated Relief Valves (PORVs) and block valves and their safety significance in PWR plants. The report identifies safety related functions that may be performed by PORVs. It also identifies potential improvements to PORVs and block valves.

Generic Issue 94 addresses concerns regarding reactor vessel low temperature overpressure protection (LTOP) systems. In 1978 the staff issued Unresolved Safety Issue (USI) A-26. The USI recommended that PWR licensees implement procedures and equipment modifications to reduce the potential for over pressure events. Despite implementation of these measures, additional overpressure events occurred. GI-94 investigated the safety significance of these continuing LTOP events.

This letter provides Commonwealth Edison Company's (CECo) response to the Generic Letter for Zion, Byron and Braidwood Stations. The attached response provides a summary of the Generic Letter background (Section I); a summary of the recommendations of the Generic Letter along with the CECo response to those recommendations (Section II); and a schedule for implementation of the CECo commitments to action items requested in the Generic Letter (Section III).

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December 6, 1990

Please address any questions concerning this response to this office.

Respectfully,



Darrell Taylor
Generic Issues Administrator

Attachment: CECO Response to Generic Letter 90-06

cc: A.B. Davis, Regional Administrator - RIII
C. Patel - Project Manager - NRR
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COMMONWEALTH EDISON COMPANY RESPONSE

Generic Letter 90-06 "Power Operated Relief Valve And Block Valve Reliability" and "Additional Low-Temperature Overpressure Protection For Light Water Reactors"

I. Generic Letter Summary

The NRC issued Generic Letter 90-06 to advise pressurized water reactor (PWR) licensees of the NRC Staff's position resulting from the resolution of Generic Issues (GIs) 70 and 94.

Generic Issue 70 evaluates the reliability of Power Operated Relief Valves (PORVs) and block valves and their safety significance in PWR plants. The report identifies safety related functions that may be performed by PORVs. It also identifies potential improvements to PORVs and block valves.

Generic Issue 94 addresses concerns regarding reactor vessel low temperature overpressure protection (LTOP) systems. In 1978 the staff issued Unresolved Safety Issue (USI) A-26. The USI recommended that PWR licensees implement procedures and equipment modifications to reduce the potential for over pressure events. Despite implementation of these measures, additional overpressure events occurred. GI-94 investigated the safety significance of these continuing LTOP events.

The recommendations of Generic Letter 90-06 along with Commonwealth Edison's responses are listed in the following section. The schedule for compliance with the actions of the Generic Letter for Byron, Braidwood, and Zion Stations is listed in section III of this submittal.

II. Requirements and Responses

Generic Letter 90-06 Actions:

Include PORVs and Block Valves in the scope of an operational QA program. This program should include the following elements:

- a) add PORVs and Block Valves to the plant operational quality assurance list.
- b) implement a maintenance/refurbishment program that is based on the manufacturer's recommendations or guidelines and is implemented by trained maintenance personnel.
- c) replacement parts and spares for non-safety grade PORVs and block valves may be procured in accordance with the original construction codes and standards.

RESPONSE:

The PORVs and Block valves for Byron, Braidwood and Zion Stations are all classified as "Safety-Related Components". This classification subjects these valves to the most stringent requirements of our Quality Assurance program.

The maintenance procedures for the PORVs and Block valves for Byron, Braidwood and Zion Stations are all based on the respective manufacturer's guidelines. In addition, an enhanced maintenance training program for MOV repair is being developed by Commonwealth Edison and is defined in Nuclear Operations Directive NOD-MA-1. This training program, affecting the block valves, will be implemented in 1991.

Since all the PORVs and block valves are safety-related, parts and replacements are purchased as safety-related equipment.

Generic Letter 90-06 Action:

Include PORVs, valves in PORV control air systems, and Block Valves in a Section XI, Inservice Test (IST) program.

RESPONSE:

The PORVs and Block valves for Byron, Braidwood and Zion Stations are included in each station's IST Program. While not specifically addressed in the IST program, the proper functioning of the solenoid air control valves at all three stations is assured by the successful completion of the PORV surveillance.

The air control check valves for Byron, Braidwood and Zion Stations are not in their respective station's IST program however, they are part of each station's surveillance program. The check valves in the air accumulator fill lines for Byron, Braidwood, and Zion Stations are tested to verify that the valves are leak tight and the accumulators retain 95 psig, without instrument air back-up, to ensure the design basis functioning of the PORVs.

Generic Letter 90-06 Action:

Stroke testing of PORVs should only be performed during Mode 3 (hot standby) or Mode 4 (hot shutdown) and in all cases prior to establishing conditions where the PORVs are used for low temperature overpressure protection.

RESPONSE:

Byron, Braidwood and Zion Stations will revise their stroke test procedures to restrict the performance of the PORV stroke test to Mode 3 or Mode 4. In addition, each station will modify their operating procedures to require that a stroke test must have been performed within 31 days prior to entering Mode 5 (cold shutdown).

Generic Letter 90-06 Action:

Stroke testing should not be performed during power operation.

RESPONSE:

Byron, Braidwood and Zion Stations will revise their PORV stroke test procedures to restrict the performance of the test to Mode 3 or Mode 4.

Generic Letter 90-06 Action:

PORV block valves should be included in the expanded MOV test program discussed in Generic Letter 89-10.

RESPONSE:

The PORV block valves for Byron, Braidwood and Zion Stations are all contained in the Generic Letter 89-10 MOV Test Program. The test program for these valves is defined in Commonwealth Edison Directive NOD-MA-1.

Generic Letter 90-06 Action:

Modify the limiting conditions of operation in station Technical Specifications for Modes 1, 2, and 3 to incorporate the position adopted by the staff in recent licensing actions, (Attachments A-1, A-2 and A-3 the Generic Letter).

RESPONSE:

Action Statements For Zion/Byron/Braidwood Tech Specs

Zion, Byron and Braidwood Stations will modify their current Tech Spec Action statements to fully comply with the Action statements proposed by the Generic Letter for PORV and Block Valve reliability.

Surveillance Requirements For Byron/Braidwood Tech Specs

Byron and Braidwood Stations will modify their current Tech Spec Surveillance requirements to comply with the surveillance requirements proposed by the Generic Letter for PORV and Block Valve reliability considerations with the following clarifications. Proposed surveillance requirement 4.4.4.1 b. states;

"Where applicable, operating solenoid air control valves and check valves on associated air accumulators in PORV control systems through one complete cycle of full travel for plants with air operated PORVs,"

Byron and Braidwood Stations intend to comply with the requirement of stroking the solenoid air control valves by performing the PORV stroke surveillance described in 4.4.4.1 a. The solenoid valves are an integral part of the PORV control system and as such are demonstrated operable by the successful completion of the PORV test.

The check valves in the air control system serve to isolate the accumulators from the instrument air system in the event of a loss in instrument air supply. The important feature of these valves is to provide a leak tight seal for the accumulators. Therefore the current non tech spec procedure that assures the integrity of the check valves and accumulators for Byron and Braidwood stations will be upgraded to a Tech Spec surveillance procedure to satisfy 4.4.4.1 b. requirements.

Also the proposed requirements 4.4.4.3 a. and b. state:

"The emergency power supply for the PORVs and block valves shall be demonstrated OPERABLE at least once per 18 months by:

- a. Manually transferring motive and control power from the normal to the emergency power bus, and
- b. Operating the valves through a complete cycle of full travel."

The OPEN and CLOSE functions of the PORVs at Byron and Braidwood Stations are supplied with 1E power. The AUTO and ARM LO TEMP functions are currently supplied with non-1E power. Therefore, with a loss of off-site power, operator action is required to manually open the valve from the main control board.

Byron and Braidwood Stations are modifying their circuitry such that all the PORV functions will be supplied with 1E power. This modification has already been installed on Braidwood Unit 2 and is scheduled for installation on the remaining Byron/Braidwood Units during their next respective refueling outage.

In the interim, the ability to power the non-1E bus from the 1E bus at the 4KV level is demonstrated by the performance of Tech Spec surveillance 4.4.3.3 therefore proposed surveillance 4.4.4.3.a and 4.4.4.3.b are not applicable to Byron or Braidwood Stations.

Surveillance Requirements For Zion Tech Specs

Zion Station intends to comply with the requirement of stroking the solenoid air control valves by performing the PORV stroke surveillance described in Generic Letter surveillance section 4.4.4.1 a. The PORV stroke test is currently a Zion Tech Spec and IST procedure. The solenoid valves are an integral part of the PORV control system and as such are demonstrated operable by the successful completion of the PORV test.

The check valves in the air control system serve to isolate the accumulators from the instrument air system in the event of a loss in instrument air supply. The important feature of these valve, is to provide a leak tight seal for the accumulators. Therefore Zion Station's current non-tech spec procedure that assures the integrity of the check valves and accumulators will be upgraded to a tech spec surveillance procedure to satisfy Generic Letter 4.4.4.1 b. requirements.

Zion Station already has the emergency power supply operability demonstration in their Tech Specs therefore no change is required to satisfy the Generic Letter intent.

Generic Letter 90-06 Action:

Revise current Tech Specs to reduce allowable outage time (AOT) for a single channel from 7 days to 24 hours when the plant is in modes 5 or 6. (see Attachment B-1 to the Generic Letter).

RESPONSE:

Action Statements For Byron/Braidwood Station Tech Specs

Commonwealth Edison cooperated with six other utilities in developing a common response to this action item of Generic Letter 90-06. The plants involved in this effort are: Byron Station, Braidwood Station, Wolf Creek Station, Vogtle Station, Comanche Peak Station, Millstone Station Unit 3, Seabrook Station, and Callaway Station. This effort was possible because of the similarity of plant types and technical specifications. That is, each of the plants are Westinghouse PWRs which utilize both the PORVs and RHR suction relief valves for low-temperature over-pressure protection.

The Byron and Braidwood Stations Cold Overpressure Technical Specification currently allows the use of either the PORV's or RH suction relief valves. A sample specification for this configuration was not provided in the Generic Letter. A revised Technical Specification which reflects this configuration will be proposed. This revised specification will adopt a 24 hour allowed outage time when only one means of Cold Overpressure Protection is available.

The revised tech specs will require that a minimum of two of these devices be operable. That is, 2 PORVs or 2 RHR Suction Relief Valves or 1 PORV and 1 RHR Suction Relief Valve must be operable during Modes 4, 5 and 6 when the reactor vessel head is on and the RCS is not vented through a 2 square inch or larger vent. This approach mirrors our current operability requirements and fully meets the intent of the Generic Letter.

The removal of the RH suction line autoclosure interlock from the Byron/Braidwood units will provide an additional margin of confidence that the suction relief valves will not be inadvertently isolated if they are required to mitigate a LTOP transient. This modification is being performed per the requirements of Generic Letter 88-17.

Also, Byron and Braidwood Stations have in place administrative controls that provide restrictions for; 1) the restart of an idle reactor coolant pump (Tech Spec 3.4.1.3) and 2) the number of high pressure safety injection pumps and charging pumps allowed to be operable when LTOP is required (Tech Spec 3/4.5.3 and 3/4.5.4.i). These administrative controls are intended to prevent deliberate plant operations which would result in potentially unsafe or unacceptable plant conditions.

Action Statements For Zion Tech Specs

Zion Station will comply with the proposed Tech Spec Action Statements by reducing the AOT for only one operable PORV in Modes 5 or 6 from the present 7 days to 24 hours.

Also, Zion Station has in place administrative controls that provide restrictions for; 1) the restart of an idle reactor coolant pump (Tech Spec 3.3.2.G.2 and 3) and 2) the number of high pressure safety injection pumps and charging pumps allowed to be operable when LTOP is required (Tech Spec 4.3.2.G.2). These administrative controls are intended to prevent deliberate plant operations which would result in potentially unsafe or unacceptable plant conditions.

Surveillance Requirements For Byron/Braidwood Station Tech Specs

Byron and Braidwood Stations will modify the wording of their current LTOP surveillance section to fully comply with the proposed Generic Letter requirements. In addition, this revised Tech Spec section will also contain the RHK suction relief valve requirement.

Surveillance Requirements For Zion Station Tech Specs

The current Zion Station Tech Specs do not require any modification to meet the proposed LTOP surveillance requirements of Generic Letter 90-06.

III. SCHEDULE

Generic Letter 90-06 Action:

Staff positions 1 and 2 in Section 3.1 should be implemented by the end of the first refueling outage that starts 6 months or later from the date of the Generic Letter.

RESPONSE:

Based on the current refueling schedule, all necessary maintenance, surveillance and operating procedures changes will be in place per the following:

Braidwood Station by May 1991 (Unit 1, outage 2)

Byron Station by November 1991 (Unit 1, outage 4)

Zion Station by November 1991 (Unit 1, outage 12)

Because refueling outage start dates are fluid, these dates are approximate.

Generic Letter 90-06 Action:

All requests for Tech Spec changes needed to comply with staff positions should be submitted by the end of the first refueling outage that starts 6 months or later from the date of the Generic Letter.

RESPONSE:

Based on our current refueling schedule, all Tech Spec change requests will be submitted according to the following:

Braidwood Station by May 1991 (Unit 1, outage 2)

Byron Station by November 1991 (Unit 1, outage 4)

Zion Station by November 1991 (Unit 1, outage 12)

Because refueling outage start dates are fluid, these dates are approximate.