



January 20, 1997

United States Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: NRC Document Control Desk

Subject: Byron Nuclear Power Station, Units 1 and 2
Facility Operating Licenses NPF-37 and NPF-66
NRC Docket Number: 50-454 and 50-455

Braidwood Nuclear Power Station, Units 1 and 2
Facility Operating Licenses NPF-72 and NPF-77
NRC Docket Numbers: 50-456 and 50-457

"Containment Isolation Valves"

Pursuant to Title 10, Code of Federal Regulations, Part 50, Section 90 (10 CFR 50.90), Commonwealth Edison Company (ComEd) proposes to amend Appendix A, Technical Specifications, for Facility Operating Licenses NPF-37, 66, 72 and 77 for Byron Nuclear Power Station, Units 1 & 2 and Braidwood Nuclear Power Station, Units 1 & 2, respectively.

ComEd proposes to revise Technical Specification Section 3.6.3 "Containment Isolation Valves" for Byron Unit 1 and Braidwood Unit 1. These changes are required to support the replacement of Byron & Braidwood Unit 1 original Westinghouse Model D4 steam generators with Babcock & Wilcox, International (BWI) steam generators. As part of the replacement project, parts of the main feedwater and auxiliary feedwater piping will be modified. The attached proposed Technical Specification amendment will delete four feedwater bypass isolation valves from Table 3.6-1. This revision will also change the penetrations associated with Unit 1 feedwater isolation valves.

This package effects Byron Unit 1 and Braidwood Unit 1 only. This amendment request is being submitted for Byron 1, Byron 2, Braidwood 1 and Braidwood 2 because of technical specification pages are common to both units.

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Enclosed is:

- Attachment A: Description & Safety Analysis for Proposed Changes to Technical Specifications
- Attachment B-1: Proposed Changes to Technical Specifications Pages for Byron
- Attachment B-2: Proposed Changes to Technical Specification Pages for Braidwood
- Attachment C: Evaluation of Significant Hazards Consideration for Proposed Changes
- Attachment D: Environmental Assessment for Proposed Changes
- Attachment E: Isolation Arrangements

Please note that the affected Improved Technical Specification (ITS) pages will be "marked up" and submitted at a later date showing the proposed changes.

To facilitate the steam generator replacement project, ComEd is requesting approval of this amendment by November 3, 1997.

I affirm that the control of this transmittal is true and correct to the best of my knowledge, information and belief.

If you have any questions concerning this correspondence, please contact Denise Saccorriando, Senior PWR Licensing Administrator at (630) 663-7283.

January 20, 1997

Sincerely,

John B. Hosmer

John B. Hosmer
Engineering Vice President

Signed before me on this 27th day of January, 1997 by

Maryellen D. Long
Notary Public



Attachments

cc: S. Burgess, Senior Resident Inspector - Byron
C. Phillips, Senior Resident Inspector - Braidwood
G. Dick, Byron/Braidwood Project Manager - NRR
A. B. Beach, Regional Administrator - RIII
Office of Nuclear Safety - IDNS

ATTACHMENT A

DESCRIPTION AND SAFETY ANALYSES FOR PROPOSED CHANGES TO APPENDIX A, TECHNICAL SPECIFICATIONS, OF FACILITY OPERATING LICENSES NPF-37, NPF-66, NPF-72 AND NPF-77

A. DESCRIPTION OF THE PROPOSED CHANGE

Commonwealth Edison (ComEd) proposes to revise Technical Specification (TS) 3.6.3 "Containment Isolation Valves" for Byron Nuclear Power Station, Unit 1 (Byron) and Braidwood Nuclear Power Station, Unit 1 (Braidwood). These changes are required to support the replacement of Byron and Braidwood Unit 1 original Westinghouse Model D4 steam generators with Babcock and Wilcox, International (BW) steam generators. As part of the replacement, some Main Feedwater (FW) and Auxiliary Feedwater (AF) piping will be modified. The proposed amendment will delete the Unit 1 FW bypass isolation valves FW043A, FW043B, FW043C, and FW043D (FW043A-D) from Table 3.6-1. This revision will also change the penetrations associated with Unit 1 FW isolation valves FW035A-D and FW039A-D and Unit 1 AF isolation valves AF013A-H. The respective isolation valves for Byron and Braidwood Unit 2, and their penetrations, are unaffected by the proposed changes.

The proposed changes are described in detail in Section E of this Attachment. Affected TS pages showing the proposed changes are included in Attachments B-1 and B-2 for Byron and Braidwood, respectively, of this license amendment request. Affected Improved Technical Specifications (ITS) pages will be prepared and submitted at a later date showing the proposed changes for Byron and Braidwood.

B. DESCRIPTION OF THE CURRENT REQUIREMENT

TS 3.6.3 requires the containment isolation valves to be operable in modes 1, 2, 3, and 4 with isolation times as described in Table 3.6-1. Table 3.6-1 provides a listing of penetrations, containment isolation valve designation, function, and applicable isolation times.

C. BASES FOR THE CURRENT REQUIREMENT

Table 3.6-1 lists the containment isolation valves for the current plant configuration with the original D4 (Unit 1) and D5 (Unit 2) steam generators. Containment isolation valves ensure that the containment atmosphere will be isolated from the outside environment in the event of a release of radioactive material to the containment atmosphere or the pressurization of the containment. These provisions are consistent with the requirements of GDC 54 through 57 of Appendix A to Title 10, Code of Federal Regulations (10 CFR Part 50). Figure 1, of Attachment E illustrates the current configuration of the isolation valves affected by the proposed changes. GDCs 54 and 57 specifically apply to the configuration of these valves.

D. NEED FOR REVISION OF THE CURRENT REQUIREMENT

ComEd proposes to revise TS 3.6.3 to reflect the containment isolation valve, penetration and valve function design differences between the Unit 1 replacement steam generators (RSGs) and the Unit 1 (Model D4) and Unit 2 (Model D5) original steam generators (OSGs). The FW injection design for the RSGs complies with NUREG-0800, Standard Review Plan, (SRP) Section 10.4.7 including BTP ASB 10-2 and complies with the recommendations of NUREG-0918, "Prevention of Waterhammer in Steam Generators." This design effectively precludes the conditions which initiate waterhammer events. The significance of the revised FW design, as applicable to containment isolation and the proposed piping configurations is:

- Single feedwater nozzle delivery will replace dual nozzle delivery. The OSG preheater design required dual nozzle delivery (Main Feedwater and Feedwater Tempering) to limit vibration in the OSG preheater section. Therefore, one less feedwater penetration (Feedwater Tempering) per replacement steam generator is required.
- The feedwater isolation bypass line required for the OSG preheater steam generators, as part of the Water Hammer Prevention System (WHPS), for limiting preheater vibration, is no longer required. Therefore, the piping and associated containment isolation valves, Feedwater Isolation Bypass Isolation Valves, FW043A-D, will be removed.
- The Feedwater Tempering containment penetration, as indicated above, is now available for other functions.

Additionally, new equipment will be added during the steam generator replacement outage to facilitate recirculation of the RSGs in wet layup conditions. The new wet layup recirculation system makes use of the existing FW tempering piping and steam generator blowdown system piping and penetrations. The addition of the wet layup system will allow ComEd to control chemistry to better protect the integrity of the RSGs during periods of extended plant shutdown.

Figure 2 of Attachment E illustrates the revised configuration of the Unit 1 isolation valves. A more specific description of the changes associated with each penetration follows:

a. Units 1 penetrations 99, 100, 101, 102

The OSG FW system configuration uses containment penetrations 99, 100, 101, and 102 for FW tempering flow. Because of the FW injection differences for the RSGs, split FW flow will no longer be needed and the subject containment penetrations will no longer be used by the FW system. Additionally, AF to the RSGs will enter the main FW injection lines outside of containment upstream of penetrations 76, 79, 84, and 87.

For the RSGs, containment penetrations 99, 100, 101, and 102 will be used by the new wet layup system. The wet layup system is also connected to the steam generator blowdown (SD) system inboard of the containment isolation valves; hence, no additional, independent isolation provisions are required in these new lines. However, the existing 3/4 inch chemical addition lines and associated isolation valves FW015A-D will tie into the new wet layup system lines and, consequently, are still associated with penetrations 99, 100, 101, and 102.

b. Units 1 penetrations 76, 79, 84, 87

The OSG FW system configuration uses containment penetrations 76, 79, 84, and 87 for the three-inch feedwater bypass line, which includes isolation valves FW043A-D. The purpose of the bypass line is to minimize waterhammer and vibration problems associated with the bottom feed preheater design of the Model D4 and D5 steam generators. The RSG design will not incorporate bottom feed preheaters. Consequently, the lines associated with isolation valves FW043A-D will be cut and capped, and the isolation valves will be removed. As noted in "a" above, AF to the RSGs will enter the main FW injection lines outside of containment and upstream of these penetrations. Therefore, as shown in Figure 2 of Attachment E, the isolation valves AF013A-H, FW035A-D, and FW039A-D will be associated with these penetrations following installation of the RSGs.

Table 3.6-1 must be revised to reflect these plant modifications.

E. DESCRIPTION OF THE REVISED REQUIREMENT

TS Table 3.6-1 will be revised to distinguish the Unit 1 RSG penetration number from the Unit 1 and Unit 2 OSG penetration numbers by the use of parentheses for the Unit 1 RSG penetration number. The change will include a triple asterisk after the parentheses which will refer to a footnote. A double # notation will be added after the existing penetration numbers to refer to a footnote. For Braidwood, the footnotes will read:

****Not applicable to Unit 2. Applicable to Unit 1 after cycle 7."

Applicable to Unit 1 through cycle 7 and to Unit 2."

For Byron, the footnotes will read:

****Not applicable to Unit 2. Applicable to Unit 1 after cycle 8."

Applicable to Unit 1 through cycle 8 and to Unit 2."

For Byron and Braidwood, the revised penetration numbers associated with the isolation valves in TS Table 3.6-1 will consist of the following:

- Penetration 76 will be associated with Unit 1 RSG valves FW035D, FW039D, AF013D, and AF013H.
- Penetration 79 will be associated with Unit 1 RSG valves FW035A, FW039A, AF013A, and AF013E.
- Penetration 84 will be associated with Unit 1 RSG valves FW035B, FW039B, AF013B, and AF013F.
- Penetration 87 will be associated with Unit 1 RSG valves FW035C, FW039C, AF013C, and AF013G.

The functional description of the manual FW isolation valves, FW015A-D in Table 3.6-1 will be revised to add the following: "(Steam Generator Recirculation)****". The triple asterisk after the parentheses relates to the footnotes described above. A double # notation will be added after the current functional description to refer to the note discussed above.

TS Table 3.6-1 will be revised to indicate that the Unit 1 FW043A-D valves will be deleted with installation of the RSGs. The change will include a double # notation after the valve number in the table which will refer to a footnote as discussed above.

F. BASES FOR THE REVISED REQUIREMENT

The containment isolation configuration of the plant is designed to General Design Criteria (GDC) 54 through GDC 57 of Appendix A of 10 CFR 50. The current configuration of the isolation valves affected by the proposed changes are specifically designed to GDCs 54 (reliability, redundancy, and performance capabilities) and 57 (closed systems). The revised configuration associated with the RSGs will also conform to GDCs 54 and 57.

Redundancy, reliability and performance capabilities required by GDC 54 for containment isolation are not affected by this change. The change affects piping configuration only. Isolation valve configurations per Updated Final Safety Analysis Report (UFSAR) Figure 6.2-29 as indicated in UFSAR Table 6.2-58, remain unchanged for all of the isolation valves except for the FW bypass isolation valves which are being removed. All necessary containment isolation functions have been maintained. Branch lines between the containment and the containment isolation valves have been minimized. All piping added as a result of the revised configuration meets the requirements of the original design. The ability to test the isolation valves has also been maintained.

GDC 55 and 56 are applicable to the containment isolation valve configurations presented in Table 3.6-1. However, neither of these GDCs apply to the isolation valves and containment penetrations affected by this proposed change. GDC 55 refers to reactor coolant pressure boundaries which penetrate containment. GDC 56 refers to penetrations that connect directly to containment atmosphere. All systems affected by this proposed change are addressed by GDC 57.

The affected systems are all closed systems per GDC 57 and have containment isolation configurations acceptable per the GDC. Closed systems are designed to withstand missile impact, accident temperature, accident pressure, fluid velocity transients, resulting harsh environments and withstand external temperatures and pressures equal to the containment design temperature and pressure. The revised configuration maintains the isolation valve requirements for closed systems within the containment and satisfies the requirements of GDC 57. By design, the configuration remains effective in providing containment isolation in the event of a single postulated failure, either of the valve or the pipe. The method for operation of the containment isolation valves has not been changed and isolation signals are not affected by the new configuration. The physical location of the containment isolation valves has not changed; therefore, the requirement for locating the valves as close as practical to the containment is maintained.

G. IMPACT OF THE PROPOSED CHANGE

Overall containment integrity is unchanged as a result of the proposed change. Four containment isolation valves will be removed. Other existing containment isolation valves will be connected to other containment penetrations. There is no negative impact on plant operations related to containment integrity. Implementation of this proposed change will not result in any new operating modes or procedures. Procedures associated with low power operation will be revised to reflect the new Unit 1 FW configuration. Therefore, these proposed changes will have no negative impact on any operating mode or procedure.

H. SCHEDULAR REQUIREMENTS

The Byron Unit 1 Steam Generator Replacement Outage (SGRO) is scheduled during the eighth refuel outage (B1R08). The Braidwood Unit 1 SGRO is scheduled during the seventh refuel outage (A1R07). Approval of this change is requested by November 3, 1997, to support the current outage schedule for the lead station which is Byron Unit 1.