

Commonwealth Edison Company  
1400 Opus Place  
Downers Grove, IL 60515-5701



February 27, 1996

United States Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D.C. 20555-0001

Subject: Supplement to the Application for Amendment to Appendix A,  
Technical Specifications, for Facility Operating Licenses:

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

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

Incorporation of 10 CFR 50, Appendix J, Option B

- References:
1. Harold D. Pontious, Jr. (ComEd) letter to NRC Document Control Desk, "Application for Amendment to Appendix A, Technical Specifications, for Facility Operating Licenses NPF-37, NPF-66, NPF-72, and NPF-77 regarding Incorporation of 10 CFR 50, Appendix J, Option B," dated December 6, 1995
  2. Teleconference between P L. Piet, et.al. (ComEd) and J. B. Hickman (NRC) held on February 22, 1996

Ladies and Gentlemen:

In Reference (1), Commonwealth Edison Company (ComEd) proposed to amend Appendix A, Technical Specifications, for Facility Operating Licenses NPF-37, NPF-66, NPF-72, and NPF-77 for Byron Nuclear Power Station, Units 1 and 2 (Byron), and Braidwood Nuclear Power Station, Units 1 and 2 (Braidwood), respectively, pursuant

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to Title 10, Code of Federal Regulations, Part 50, Section 90 (10 CFR 50.90). ComEd proposed to revise Technical Specification Section 3/4.6.1, "Primary Containment," to incorporate the requirements of the revised 10 CFR 50, Appendix J, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors," which became effective on October 26, 1995. Specifically, ComEd proposed to implement 10 CFR 50, Appendix J, Option B which allows use of performance based surveillance frequencies for Type A, B, and C tests, rather than predetermined, fixed intervals.

In Reference (2), ComEd agreed to make the following changes to our original license amendment request:

1. change all references of "Regulatory Guide 1.163, Revision 0" to "Regulatory Guide 1.163, September 1995,"
2. add a reference to "10 CFR 50, Appendix J, Option B" with every reference to "Regulatory Guide 1.163, September 1995," and
3. restore the acceptance criteria to Technical Specification Surveillance Requirements (TSSRs) 4.6.1.3.a and 4.6.1.3.d.

Although these changes are editorial in nature, they affect a majority of pages in the original license amendment request. For ease of NRC Staff review, this supplement was written as a complete package to supersede the original license amendment request. However, there are no changes to the original Attachment C, Evaluation of Significant Hazards Considerations.

The proposed changes in this supplemental license amendment request have been reviewed and approved by both On-site and Off-site Review in accordance with ComEd procedures.

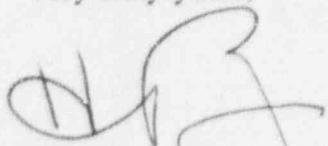
ComEd is notifying the State of Illinois of our supplemental license amendment request by transmitting a copy of this letter and its attachments to the designated State Official.

To the best of my knowledge and belief, the statements contained in this document are true and correct. In some respects these statements are not based on my personal knowledge, but on information furnished by other ComEd employees, contractor employees, and/or consultants. Such information has been reviewed in accordance with company practice, and I believe it to be reliable.

February 27, 1996

Please address any comments or questions regarding this matter to this office.

Very truly yours,



Harold D. Pontious, Jr.  
Nuclear Licensing Administrator



Signed before me

on this 27<sup>th</sup> day of January, 1996

by Mary Jo Yack  
Notary Public

Attachment A: Description and Safety Analysis of the Proposed Changes

Attachment B-1: Proposed Changes to Appendix A, Technical Specifications, for the Byron Nuclear Power Station, Units 1 and 2

Attachment B-2: Proposed Changes to Appendix A, Technical Specifications, for the Braidwood Nuclear Power Station, Units 1 and 2

Attachment C: Evaluation of Significant Hazards Considerations

Attachment D: Environmental Assessment

Attachment E: 10 CFR 50, Appendix J, Option B Implementation Plan

cc: H. J. Miller, Regional Administrator - RIII  
G. F. Dick Jr., Byron Project Manager - NRR  
R. R. Assa, Braidwood Project Manager - NRR  
J. B. Hickman, Project Manager, PDIII-1 - NRR  
H. Peterson, Senior Resident Inspector - Byron  
C. J. Phillips, Senior Resident Inspector - Braidwood  
Office of Nuclear Facility Safety - IDNS

## ATTACHMENT A

### **DESCRIPTION AND SAFETY ANALYSIS OF PROPOSED CHANGES**

#### **Summary of the Proposed Changes**

Commonwealth Edison (ComEd) proposes to revise Byron Nuclear Power Station, Units 1 and 2 (Byron), and Braidwood Nuclear Power Station, Units 1 and 2 (Braidwood) Technical Specification (TS) Section 3/4.6.1, "Primary Containment," and the associated Bases to reflect recent changes to Appendix J to 10 CFR 50, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors." The proposed revisions will allow ComEd to take advantage of the changes for Type A, B, and C tests and save substantial amounts of money. Deferring an integrated leak rate test (ILRT) alone saves up to \$1,900,000. Specifically, the changes include:

1. Adding TS Definitions for the maximum allowable primary containment leakage rate ( $L_a$ ) and for the maximum calculated primary containment pressure ( $P_a$ ). The redundant definitions throughout TS 3/4.6.1 are deleted,
2. Adding statements throughout TS 3/4.6.1 that leak rate testing is performed in accordance with 10 CFR 50, Appendix J, Option B, and Regulatory Guide (RG) 1.163, "Performance-Based Containment Leak-Test Program," September 1995, and its referenced documents,
3. Deleting TS requirements that are taken verbatim from 10 CFR 50, Appendix J. The specific requirements will be placed in the containment leakage rate test program in accordance with 10 CFR 50, Appendix J, Option B, and RG 1.163 and its referenced documents, and
4. Clarifying Technical Specification Surveillance Requirement (TSSR) 4.6.1.1.a for consistency with NUREG-1431, "Standard Technical Specifications for Westinghouse Plants," Revision 1.

The marked up TS pages for each station indicating the proposed changes are provided in Attachments B-1 and B-2 for Byron and Braidwood, respectfully. A detailed discussion of the changes follows.

### Description and Bases of the Current Requirement

TS 3.6.1.1, "Containment Integrity," provides requirements to demonstrate primary containment integrity. Maintaining primary containment integrity ensures that the release of radioactive materials from the containment atmosphere will be restricted to those leakage paths and associated leak rates assumed in the safety analyses.

TS 3.6.1.2, "Containment Leakage," provides acceptance criteria on containment leakage rates to ensure that the total containment leakage volume will not exceed the value assumed in the accident analyses at the peak accident pressure. The surveillance testing for measuring leakage rates is consistent with 10 CFR 50, Appendix J. ComEd intends to maintain the option to continue using the BN-TOP-1 method for performing Type A tests.

TS 3.6.1.3, "Containment Air Locks," provides limitations on closure and leak rates for the containment air locks to meet the restrictions on containment integrity and containment leak rate. The surveillance testing provides assurance that the overall air lock leakage will not become excessive due to seal damage during the intervals between air lock leakage tests.

TS 3.6.1.7, "Containment Purge Ventilation System," provides limitations on the opening of the 48-inch and 8-inch containment purge supply and exhaust isolation valves to ensure that the site boundary dose guideline values of 10 CFR 100 are not exceeded. Leakage integrity tests with a maximum allowable leakage rate for containment purge supply and exhaust isolation valves provides early indication of resilient material seal degradation and allows opportunity for repairs before gross leakage failures could develop.

### Description and Bases of the Requested Revision

ComEd proposes to revise TS 3/4.6.1 to reflect the final rule for primary reactor containment leakage testing for water-cooled power reactors, which took effect October 26, 1995. 10 CFR 50, Appendix J, was amended to provide a performance-based option (Option B) for leakage rate testing of containment. The final rule allows test intervals to be based on system and component performance and provides licensees greater flexibility for cost effective implementation methods of regulatory safety objectives. Specifically, the changes are as follows:

TS Definitions 1.15.a for the maximum allowable primary containment leakage rate ( $L_a$ ) and 1.20.a for the maximum calculated primary containment pressure ( $P_a$ ) are added. The redundant definitions throughout TS 3/4.6.1 are deleted.

TS 3.6.1.2, and TSSRs 4.6.1.1.c, 4.6.1.2.b, 4.6.1.2.c, and 4.6.1.2.d, are deleted and replaced with references to 10 CFR 50, Appendix J, Option B, and RG 1.163, which provides the specific program requirements for the containment leakage rate test program. The Bases for TS 3/4.6.1.2 are revised to reflect the changes to the TSs

described above.

TSSR 4.6.1.3.a and 4.6.1.3.d are revised to delete specific surveillance frequencies and state that the surveillances are performed in accordance with 10 CFR 50, Appendix J, Option B, and RG 1.163.

TSSR 4.6.1.3.b is revised to delete the exemption to Appendix J of 10 CFR 50 and state that air lock leakage tests are conducted in accordance with RG 1.163 and 10 CFR 50, Appendix J, Option B. The two footnotes associated with this surveillance requirement are deleted since they are no longer applicable.

TSSRs 4.6.1.7.3 and 4.6.1.7.4 are revised to delete program specific details and replace them with references to RG 1.163 and 10 CFR 50, Appendix J, Option B.

In addition, TSSR 4.6.1.1.a is clarified to exclude containment isolation valves that are opened under administrative controls. This change is consistent with NUREG-1431, Revision 1. An editorial change is proposed to Bases page B 3/4.6.1.4 to correctly identify the Updated Final Safety Analysis Report (UFSAR) Chapter 15 accident analysis reference.

### **Impact of the Proposed Change**

The proposed changes are based on guidance documents that presented model TSs for implementing Option B to 10 CFR 50, Appendix J. Since Byron and Braidwood do not currently use the improved standard technical specification (ISTS) format, which was used in the model technical specifications, ComEd is proposing changes that deviate from the model. ComEd feels it was necessary to deviate due to the expedited nature of the amendment request. The rule was published only recently, and industry guidelines have not been finalized. ComEd applied the changes reflected in the model to the appropriate Byron and Braidwood TSs and believes that the proposed changes appropriately reflect the revised requirements and maintain an appropriate level of control.

ComEd will review the model technical specifications associated with the Appendix J change as part of the conversion to the ISTS. The conversion package is expected to be submitted to the United States Nuclear Regulatory Commission (USNRC) in mid-1996. ComEd believes that adopting the ISTS format and relocating all of the leakage program requirements at this time would create confusion for ComEd personnel. In addition, relocating certain site specific details of the leakage program appears to be independent of the change to 10 CFR 50, Appendix J. This would be one of the steps required to eventually convert to the ISTS format. ComEd's overall leakage program will consist of the station administrative requirements and the TS requirements. More detailed information about the program is provided in Attachment E.

Adding TS Definitions 1.15.a for the maximum allowable primary containment leakage rate ( $L_a$ ) and 1.20.a for the maximum calculated primary containment pressure ( $P_a$ ) is

editorial. The numerical values are unchanged. Including the values in the TS Definitions eliminates the need to redefine the terms each time they are used. In the event that either value changes, the corresponding TS amendment would only involve revising the appropriate definition to reflect the new value. The redundant references to the values are no longer needed in TS 3/4.6.1 and are, therefore, deleted.

References to  $L_n$ , containment vessel reduced test pressure selected to measure the integrated leakage rate, are also deleted. Byron and Braidwood do not perform leakage at reduced test pressure, and such testing is not permitted by the revised code.

Deleting details of the leak test program from the TSs and replacing them with references to 10 CFR 50, Appendix J, Option B and RG 1.163 is consistent with the recommendation in the RG. The USNRC has determined that the industry guideline described in the RG is an acceptable means of demonstrating compliance with the requirements of Option B to Appendix J of 10 CFR 50. The RG refers to specific documents that, together with station procedures, comprise the overall testing program. ComEd's testing program is described in Attachment E.

It is important to note that Nuclear Energy Institute (NEI) 94-01, Revision 0, "Nuclear Energy Institute Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," specifies that the elapsed time between the first and last tests in a series of consecutive satisfactory Type A leakage tests used to determine performance shall be at least 24 months. However, the normal Byron and Braidwood refueling interval of 18 months is a more appropriate minimum interval between Type A tests and should be used to make this determination at Byron and Braidwood.

Byron and Braidwood will follow the direction of NEI 94-01, Section 9.2.6, regarding counting Type B and C leakage discovered during performance of the Type A test. Specifically, leakage paths detected during a Type A test that are caused by failures of Type B and Type C test components are not required to be included in determination of adequate performance and Type A test intervals. Corrective actions for Type B and Type C failures should be taken in accordance with Section 10 of the guideline.

The only currently approved exemption to Appendix J of 10 CFR 50 for Byron and Braidwood allows relief from the requirement to Paragraph III D.2(b)(ii), which states "Air locks opened during periods when containment integrity is not required by the plant's Technical Specifications shall be tested at the end of such period at not less than  $P_n$ ." This exemption for containment air lock testing is allowed if the air lock surveillance is within its 6 month frequency and no maintenance has been done on the air lock that could affect the air lock sealing capability. The exemption is currently included in TSSR 4.6.1.3.b.2.

RG 1.163 endorses NEI 94-01. The Regulatory Position describes using the technical methods and techniques for performing leak rate tests described in ANSI/ANS-56.8-1994, "American National Standard for Containment System Leakage Testing Requirements", with some exceptions:

- The test intervals in ANSI/ANS-56.8-1994 are not performance based,

therefore, test intervals shall be determined based on the criteria of Section 11.0 of NEI 94-01.

- The USNRC did not endorse the guidance provided in Section 11.3.2, "Programmatic Controls," of NEI 94-01 for selecting extended test intervals greater than 60 months for Type C tested components. The test interval for Type C tests for containment purge and vent valves should be limited to 30 months as specified in Section 3.3.4 of ANSI/ANS-56.8-1994, with consideration given to operating experience and safety significance.
- The USNRC provided additional guidance for Section 9.2.1, "Pretest Inspection and Test Methodology" of NEI 94-01.
- Finally, the USNRC did not endorse the "alternative test or analysis" provision in Section 10.2.3.3 of NEI 94-01.

ComEd intends on complying with the requirements of RG 1.163, including the NEI 94-01 exceptions summarized above and described in detail in the regulatory guide. In addition, ComEd intends to maintain the option to continue using the BN-TOP-1 method for performing Type A tests. In the 1970s, the Atomic Energy Commission (AEC) issued a letter that allowed utilities to use the BN-TOP-1 method. Since this method allows for a six hour Type A test and a three hour verification test, rather than an eight hour Type A test and a four hour verification test, a three hour savings of critical path time is realized every time it can be used.

The requirements currently provided in TS 3.6.1.2 and TSSRs 4.6.1.1.c, 4.6.1.2.b, 4.6.1.2.c, and 4.6.1.2.d are taken verbatim from the documents endorsed by RG 1.163 and 10 CFR 50, Appendix J, Option B. Therefore, removing the redundant requirements from the TSs and replacing them with references to RG 1.163 and 10 CFR 50, Appendix J, Option B does not affect containment integrity or leakage testing requirements.

TSSR 4.6.1.3.a and 4.6.1.3.d are revised to delete specific surveillance intervals and state that the surveillance is performed in accordance with RG 1.163 and 10 CFR 50, Appendix J, Option B. The surveillance frequency will be determined using Appendix J of 10 CFR 50, Option B.

TSSR 4.6.1.3.b is revised to replace the approved exemption to Appendix J of 10 CFR 50, Paragraph III D.2(b)(ii) with a requirement to perform the Type B and C tests in accordance with Regulatory Guide 1.163, September 1995 and 10 CFR 50, Appendix J, Option B. The regulatory guide provides the desired flexibility, therefore, the exemption is no longer needed.

TSSRs 4.6.1.7.3 and 4.6.1.7.4 are revised to delete specific program details that are in accordance with RG 1.163, Regulatory Position C.2.

The proposed change to TSSR 4.6.1.1.a clarifies that the valves that are open under

administrative controls are not required to meet the surveillance requirement during the time the valves are open. The change is consistent with NUREG-1431, Surveillance Requirement 3.6.3.3. The provision allows operational flexibility for surveillance and maintenance activities.

The proposed changes to the Bases maintain consistency with the proposed TSs. The reference to L<sub>1</sub> is deleted and RG 1.163 and 10 CFR 50, Appendix J, Option B are referenced in the Bases for TS 3/4.6.1.2. The Bases for TS 3/4.6.1.3 is revised to delete the reference to precision flow measurements since RG 1.163 includes the precision requirements. It is not necessary to duplicate the requirement in the Bases.

The remaining changes are editorial to provide consistency with NUREG-1431 and to reflect current references.

#### **Schedule Requirements**

ComEd respectfully requests that the United States Nuclear Regulatory Commission (USNRC) Staff review and approve this license amendment request as soon as possible. Byron and Braidwood would like to take advantage of the surveillance frequency relaxation allowed by 10 CFR 50, Appendix J, Option B during their Spring 1996 refuel outages, Byron, Unit 1, Cycle 7, Refuel Outage (B1R07) currently scheduled to begin April 5, 1996 and the Braidwood, Unit 2, Cycle 5, Refuel Outage (A2R05) currently scheduled to begin March 16, 1996.

Byron and Braidwood can each expect to save at least \$30,000 per refuel outage by deferring Type B and C tests as allowed by 10 CFR 50, Appendix J, Option B. Byron will save over \$250,000 in direct costs and 3-5 days of critical path time by deferring the Type A test currently scheduled to be performed during B1R07, as allowed by 10 CFR 50, Appendix J, Option B. The total cost savings are expected to exceed \$1,900,000 each time a Type A test can be deferred.

#### **Identification and Discussion of Any Irreversible Consequences**

There were no irreversible consequences identified.