Commonwealth Edison
1400 Opus Place
Downers Grove, Illinois 60515

February 2, 1995

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

Attn: Document Control Desk

Subject: Supplement to Application for Amendment to Facility Operating Licenses:

Byron Station Units 1 and 2
NPF-37/66; 50-454 and 50-455

Braidwood Station Units 1 and 2
NPF-72/77; 50-456 and 50-457

"F* Technical Specification Amendment Request"

References:
1. J. Bauer letter to T. Murley dated March 20, 1994, transmitting Application for Amendment to Facility Operating Licenses for Byron and Braidwood Stations pertaining to an Alternative Repair Criteria Defined as F*

2. G. Dick letter to D. Farrar dated November 3, 1994, transmitting Request for Additional Information Pertaining to the F* Methodology

3. D. Saccomando letter to NRC dated December 2, 1994, transmitting Response to Request for Additional Information Pertaining to the F* Methodology

In Reference 1, Commonwealth Edison Company (ComEd) requested approval of a license amendment to permit the use of an alternate tube repair criteria, F*, for the steam generators at Byron and Braidwood Stations. In Reference 2, the Nuclear Regulatory Commission (NRC) transmitted to Commonwealth Edison Company (ComEd) a request for additional information (RAI) regarding this amendment request. Reference 3 transmitted ComEd's response to the RAI.

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As a result of these questions and conversation with the Staff, Byron and Braidwood Stations are submitting the attached package:

Attachment A "Description and Safety Analysis of Proposed Changes to the Technical Specifications," this attachment supplements that which was provided in Reference 1.

Attachment B "Marked Up Pages for Proposed Changes to the Technical Specifications "these pages supersede those which were previously transmitted in Reference 1 and incorporate information as a result of the RAI and conversations with the Staff. Additionally, this package contains the most current Technical Specification pages that were issued in via Amendments 67 and 57 for Byron and Braidwood, respectively.

Attachment C "Evaluation of Significant Hazards Consideration" This attachment supersedes that which was transmitted in Reference 1.

Attachment D which was previously provided in Reference 1 remains unchanged.

Please note that Braidwood and Byron Stations are actively pursuing submitting a Technical Specification amendment to the Staff to request increasing the current Interim Plugging Criteria. This amendment request should be received by the NRC during mid-February. This information is being highlighted to the NRC to clarify the following:

The F* amendment request and the IPC amendment request effect the same Technical Specification pages. Depending on the order of issuance of these amendments, the Staff and ComEd may need some additional conversation regarding the numbering of sections for these pages.

The total primary-to-secondary leakage that is currently listed in the Braidwood Technical Specification Section 4.4.5.4.11.a.3 will be revised in Braidwood's upcoming IPC amendment. The current value of 9.1 gpm is based on accident leakage only and needs to be increased to 9.4 gpm to include operational leakage.

ComEd requests approval of the F* criteria amendment prior to the Byron Unit 1 mid-cycle outage, which is currently scheduled for September 15, 1995.

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

Sincerely,

Denise Saccomando
Nuclear Licensing Administrator

Attachments

cc: R. Assa, Braidwood Project Manager, NRR
G. Dick, Byron Project Manager, NRR
S. Dupont, Senior Resident Inspector, Braidwood Station
H. Peterson, Senior Resident Inspector, Byron Station
J. Martin, Regional Administrator, III
Office of Nuclear Safety, IDNS

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ATTACHMENT A

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

DETAILED DESCRIPTION OF PROPOSED CHANGE

The purpose of this supplemental request is to approve additional changes to a previously submitted Technical Specification (TS) change request for an alternate repair criteria (ARC) for steam generators. The ARC being requested is designated as the F* criteria. This criteria will be used for the Byron and Braidwood Unit 1, D4 series, recirculating steam generators. On November 3, 1994, the NRC requested additional information on the F* submittal and clarification of the F* tube definition. This request was answered in a letter submitted on December 2, 1994, from D. Saccomando to the Office of Nuclear Reactor Regulation. In the letter, ComEd stated that a supplemental amendment for F*, revising the Technical Specifications, would be submitted by February 3, 1995. The NRC also requested a change to the bases section of TS to show that the maximum postulated accident leakage from cracks allowed to remain in service through the use of the F* criterion and other criteria, for example, the interim plugging criteria (IPC), will continue to be within the allowable leakage limits under accident conditions.

1. Description of Current Requirements:

The existing Technical Specification Surveillance Requirements (TSSR) 4.4.5, provides for the steam generator (SG) sample selection, inspection, inspection frequency, acceptance criteria, and required reports to the NRC. Currently at Byron and Braidwood, if a steam generator tube is found to be defective and the defect is located within the tubesheet, the tube is removed from service or repaired.

The current Technical Specification requirements for "Steam Generators" has no criteria for an alternate repair of steam generator tubes other than the one volt IPC. The original submittal for F*, submitted on May 20, 1994, requested the approval of the alternate repair criteria, and would place the definitions, acceptance criteria, reportability requirements, and bases in the Byron and Braidwood Technical Specifications.

After review of the original F* package, the NRC requested clarification of the definition for a F* tube and also requested the inclusion of the F* leakage in the accident leakage limits. The accident leakage limit was defined in the Steam Generator bases section for the IPC amendment request.

The following paragraphs stating the accident leakage limits were added to the Steam Generator bases section with the approval of IPC.

For Byron:

> "For Unit 1, Cycle 7, tubes experiencing outer diameter stress corrosion cracking within the thickness of the tube support plates will be dispositioned in accordance with Specification 4.4.5.4.a.11. The operating period may be adjusted to less than the full operating cycle to meet the maximum site allowable primary-to-secondary leakage limit for End of Cycle Main Steam Line Break conditions. The leakage limit, 12.8 gpm, includes the accident leakage from a faulted steam generator and the operational leakage of the three remaining intact steam generators equal to the Specification 3.4.6.2.c leakage limit."

For Braidwood:

> "For Unit 1, Cycle 5, tubes experiencing outer diameter stress corrosion cracking within the thickness of the tube support plates will be dispositioned in accordance with Specification 4.4.5.4.a.11."

The IPC amendment was issued after the original submittal date for F*. Therefore, these changes are being made to accommodate the requested changes from the NRC and to update the Steam Generator Technical Specifications with the issuance of the IPC amendment.

2. Bases for the Current Requirements:

The surveillance requirements for inspection of the SG tubes ensure that the structural integrity of this portion of the RCS will be maintained. The program for inservice inspection of SG tubes is based on a modification of Regulatory Guide 1.83, Revision 1. Inservice inspection of SG tubes is essential to maintain surveillance of the condition of the tubes to detect evidence of mechanical damage or progressive degradation due to design, manufacturing errors, or in service conditions that lead to corrosion. Inservice inspections of steam generator tubing also provides a means of characterizing the nature and cause of any tube degradation so that corrective measures can be taken.

3. Description of the Need for Amending the Technical Specifications:

The number of SG tubes identified during the inspection process that have required corrective action has increased significantly in the latest Byron and Braidwood refueling outages. In order to minimize the number of tubes being plugged and extend steam generator life expectancy, increased flexibility is necessary to reduce the number of SG tubes being removed from service. Consequently, an alternate repair criteria (ARC) designated as the F* criteria is being requested for consideration as an acceptable alternative. The F* methodology establishes a means to justify leaving tubes in service which have indications within the rolled region of the tubesheet. Application of the F* criterion with the use of other criteria, for example IPC, will continue to restrict the postulated maximum accident leakage to within the allowed leakage limits and will be specified in the TS bases.

The NRC requested clarification for the F* tube definition by defining the expression for the F* tube that it "contains sound expanded tubing within the F* distance."

The F* criteria was qualified by "Babcock & Wilcox Nuclear Technologies (BWNT) Topical Report BAW-10196 P, Revision 1, W-D4 F* Qualification Report.' This report was included in the original submittal from J. Bauer to W.T. Russell dated May 20, 1994.

Byron and Braidwood are requesting a generic wording change when referring to the vendor Topical Reports in the bases. Changing the acceptance criteria to reference the current NRC approved BWNT Topical Report BAW 10196 P will reduce the burden and expense for Byron and Braidwood by reducing the need for additional amendment requests. The proposed editorial change removes the reference to a specific revision of the vendor report in order to reduce the number of amendment requests required by ComEd. In referencing the current NRC approved Topical Report, the burden on the NRC Technical Review staff for review of additional amendment requests can also be minimized. As new methodologies are developed for the BWNT F* methodology, ComEd will have the option to use the advanced process after NRC approval, subject to any limitations and restrictions noted by the NRC staff. The NRC had suggested these changes for the sleeving amendment to account for the advances in technologies.

4. Description of the Proposed Amendment:

The changes proposed in this supplemental amendment are contained in the A, C, D, E, and F inserts of Attachment C. Inserts A, C, and D have been revised to reflect the proper numerical identification after issuance of the IPC amendment.

The NRC requested additional information to the F* submittal on the clarification of the F* tube definition by either defining the expression used or changing the wording to standard industry nomenclature.

In the request for additional information, the NRC also requested clarification to the bases section to show that the maximum postulated accident leakage from cracks allowable to remain in service by use of the F* criterion and other criteria, such as the interim plugging criteria (IPC), will continue to be within the allowed leakage limits under accident conditions.

Specification 4.4.5.2, Steam Generator Tube Sample Selection and Inspection

Insert "A" has been revised numerically to reflect the issuance of the IPC amendment with the wording changes to make the insert consistent with other Unit 1 amendments.

Specification 4.4.5.4, Acceptance Criteria

Insert "B" remains unchanged.

Insert "C" defines the F* distance and F* tube acceptance criteria as follows:

12) F* Distance is the distance into the tubesheet from the secondary face of the tubesheet or the top of the last hardroll, whichever is further into the tubesheet, that has been determined to be 1.7 inches.

13) F* Tube is a Unit 1 SG tube with degradation below the F* distance and has no indications of degradation (i.e., no indication of cracking) within the F* distance. Defects contained in an F* tube are not dependant on flaw geometry.

The numbering for the specifications have been revised to reflect the issuance of the IPC amendment.

Specification 4.4.5.5, Reports

The original wording for insert D remains unchanged. The section is revised to reflect the issuance of the IPC amendment and will be inserted on a new TS page, 3/4 4-17b.

Bases for 3/4.4.5, Steam Generators

The statement added to paragraph three of the bases remains unchanged.

Insert "E" identifies the qualification report used as the technical bases for the alternate repair criteria, F* and will be inserted on page B 3/4 4-3b as follows:

> "For Unit 1, plugging or repair is not required for tubes with degradation within the tubesheet area which fall under the alternate tube plugging criteria defined as F*. The F* Criteria is based on "Babcock & Wilcox Nuclear Technologies (BWNT) Topical Report BAW-10196 P."
>
> F* tubes meet the structural integrity requirements with appropriate margins for safety as specified in Regulatory Guide 1.121 and the ASME Boiler and Pressure Vessel Code, Section III, Subsection NB and Division I Appendices, for normal operating and faulted conditions."

The basis for steam generator tube surveillance and plugging/repair is to ensure that the tube structural integrity is maintained. The F* criteria was developed tc preclude the unnecessary plugging of tubes by allowing tubes with degradation below the F* distance to remain in service. A statement will be added to paragraph four in the bases to show that the maximum postulated accident leakage from cracks that are allowed to remain in service by the use of the F* criterion and the use of other criteria, (i.e., IPC, the interim plugging criteria for Outer Diameter Stress Corrosion Cracking), will continue to be within the allowed leakage limits under accident conditions.

Insert "F" reads as follows:

For Byron:

> "The leakage limit, 12.8 gpm, includes the accident leakage from IPC in addition to the accident leakage from F* on the faulted steam generator and the operational leakage limit of Specification 3.4.6.2.c. The operational leakage limit of Specification 3.4.6.2.c in each of the three remaining intact steam generators shall include the operational leakage from F*."

For Braidwood:

> "The leakage limit, 9.1 gpm, includes the accident leakage from IPC in addition to the accident leakage from F* on the faulted steam generator and the operational leakage limit of Specification 3.4.6.2.c. The operational leakage limit of Specification 3.4.6.2.c in each of the three remaining intact steam generators shall include the operational leakage from F*."

5. Impact of Proposed Change

The proposed Technical Specification change is requested to provide ComEd with an alternative for dispositioning degraded steam generator tubes. Use of the F* criteria provides benefits by maintaining tube heat transfer capabilities and by reducing personnel radiation exposure obtained during plugging/sleeving operations.

6. Schedule Requirements:

Commonwealth Edison Company (CECo) requests approval of the F* Criteria amendment prior to the Byron Unit 1 mid-cycle outage, B1P02, scheduled for September 15, 1995.