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

ComEd

April 30, 1996

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

Attn. Document Control Desk

Subject: Byron and Braidwood Station Units 1 & 2
Application of Leak-Before-Break Methodology to the
Primary Reactor Coolant System (RCS)
NRC Docket Numbers: 50 - 454, 455, 456 and 457

Reference: Nuclear Regulatory Commission Reply to R.E. Ginna Nuclear Power Plant Application of Leak Before Break dated June 8, 1993

The Commonwealth Edison Company (ComEd) is requesting the Nuclear Regulatory Commission (NRC) to review and approve the attached analysis associated with the justification for the elimination of large primary loop pipe rupture so that this may be excluded from the design basis, per General Design Criteria 4, "Environmental and Dynamic effects Design Bases, " for Byron and Braidwood Station Units 1 and 2. This anaiysis supports ComEd's intent to eliminate dynamic effects as defined by the published broad scope of the final rule with respect to missile generation, pipe whipping, pipe break reaction forces, jet impingement forces, decompression waves within the ruptured pipe and dynamic or nonstatic pressurization in cavities, subcompartments and compartments. This analysis demonstrates that the probability of pipe rupture is extremely low under conditions consistent with the design of the piping. This request excludes application of leak before break (LBB) to: a) pipe rupture of the emergency core cooling system, b) cavities, subcompartments and compartments necessary to the containment function, and c) environmental qualification of electrical and mechanical equipment.

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ComEd is requesting approval of the attached leak before break methodology analysis in its entirety. Previously, Byron and Braidwood applied the leak before break methodology for the specific application for the removal of the whip restraints and the jet impingement shields only.

- At the time that Byron 1 applied the methodology, General Design Criteria (GDC) 4 had been revised to allow the removal of the restraints and shields. The modification was performed via the 50.59 process.
- For Byron 2, Braidwood 1 and Braidwood 2, an exemption was granted from a portion of the requirements of GDC-4.

ComEd also believes that the attached analysis supports ComEd's intent to design the replacement steam generator internal components on the basis of reduced loads resulting from the application of LBB to postulated breaks in the primary reactor coolant loop piping. Specifically, the dynamic effects of primary side piping ruptures need not be included in the design basis of the primary side divider plate of the replacement steam generators. Leak before break considerations continues to be valid for the primary coolant loop piping after installation of the replacement steam generators. This approach was previously submitted by the Ginna Nuclear Power Station and approved in the Reference letter.

Additionally, please note that ComEd has previously requested and received approval from the NRC to extend LBB, in accordance with revised GDC-4 according to the criteria in NUREG-1061, Vol.3, to stainless steel piping systems that include the reactor coolant bypass line and the safety injection accumulator line for all fours units. The design basis for these lines remains unchanged as a result of this current submittal.

ComEd is requesting that the Staff review and approve the attached analysis.

Attachment A contains:

WCAP-14559 Revision 1, "Technical Justification for Eliminating Large Primary Loop Pipe Rupture as the Structural Design Basis for the Byron and Braidwood Units 1 and 2 Nuclear Power Plants"- Proprietary Version, and

Attachment B contains:

> WCAP-14560 Revision 1, "Technical Justification for Eliminating Large Primary Loop Pipe and Rupture as the Structural Design Basis for the Byron and Braidwood Units 1 and 2 Nuclear Power Plants"- Non-Proprietary Version.

Please note that WCAP-14559 Rev 1, "Technical Justification for Eliminating Large Primary Loop Pipe Rupture as the Structural Design Basis for the Byron and Braidwood Units 1 and 2 Nuclear Power Plants" contains information proprietary to Westinghouse Corporation and is supported by an affidavit signed by Westinghouse, the owner of the information. The affidavit sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in Paragraph (b)(4) of Section 2.790 of the Commission's regulations. Accordingly, it is respectfully requested that the information which is proprietary to Westinghouse be withheld from public disclosure in accordance with 10 CFR 2.790 of the Commission's regulations.

Correspondence with respect to the proprietary aspects of the items should be addressed to N.J. Liparulo, Manager Nuclear Safety Regulatory and Licensing Activities, Westinghouse Corporation.

ComEd is requesting approval of this analysis by October 15, 1996, to support design work relating to the steam generator replacement project.

If you have any questions concerning this correspondence, please contact Denise Saccomando at (708) 663-7283.

Sincerely,

John B. Hosmer

John B. Hosmer
Engineering Vice President

Attachments
cc:

> G. Dick, Byron Project Manager-NRR
> R. Assa, Braidwood Project Manager-NRR
> C. Phillips, Senior Resident Inspector-Braidwood
> H. Peterson, Senior Resident Inspector-Byron
> Office of Nuclear Safety-IDNS