



Commonwealth Edison
1400 Opus Place
Downers Grove, Illinois 60515

May 4, 1994

Mr. William Russell, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attn: Document Control Desk

Subject: Braidwood Station Unit 1
Additional Information Regarding
Emergency Technical Specification Amendment for
Technical Specification 3/4.4.5
NRC Docket No. 50-456

- References:
- 1) Nuclear Regulatory Commission (NRC) Telecopy to Commonwealth Edison Company (CECo) dated April 29, 1994, transmitting Questions in Response to Braidwood April 25, 1994, Submittal
 - 2) D. Saccomando letter to W. Russell dated April 30, 1994, transmitting Supplemental Information to the Request for Emergency Technical Specification Amendment
 - 3) D. Saccomando letter to W. Russell dated April 28, 1994, transmitting Additional Information regarding Emergency Technical Specification Amendment for Specification 3/4.4.5
 - 4) D. Saccomando letter to W. Russell dated April 25, 1994, transmitting request for Emergency Technical Specification Amendment for Specification 3/4.4.5

Dear Mr. Russell,

Reference 4 and the subsequent supplement transmitted CECo's request to process an Emergency Technical Specification Amendment to Specification 3/4.4.5 for Braidwood Unit 1. The proposed amendment modifies the Technical Specification to incorporate a 1.0 volt steam generator tube interim plugging criteria (IPC) for Cycle 5.

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Reference 1 was transmitted to the CECo and contained seven concerns/questions regarding steam generator tube leakage preventative and mitigative measures. The Attachment to this letter completes CECo response to these questions. Each of the questions were addressed as follows:

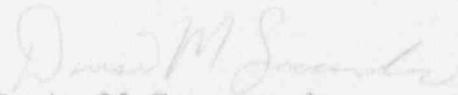
Reference 3, Attachment parts D, A.3, and B contained CECo's response to questions 1, 6, and 7 respectively.

Reference 2, Attachment C contained CECo's response to question 3.

The Attachment to this letter contains CECo's response to questions 2, 4, and 5.

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

Respectfully,



Denise M. Saccomando
Nuclear Licensing Administrator

cc: R. Assa, Braidwood Project Manager-NRR
S. Dupont, Senior Resident Inspector-Braidwood
J. Martin, Regional Administrator-Region III
Office of Nuclear Facility Safety-IDNS

ATTACHMENT

- 2) **A number of PWRs are considering or taking action to install N16 steam line radiation monitors. These monitors potentially offer real-time information to the operator of primary-to-secondary leakage magnitude and source. Discuss the impact of installing steam line N-16 radiation monitors that would provide indications to control room operators.**

Braidwood Station has one portable N-16 monitor for local readout use. A modification was proposed to install N-16 monitors on each Main Steam line with indication in the Control Room. This modification was canceled based on the response of existing radiation monitors (Main Steam Area Radiation Monitors, Steam Jet Air Ejector/Gland Steam Process Radiation Monitor) to the Unit 1 Steam Generator C tube leak event of October 1993. These monitors proved to be effective in detecting the October 1993 primary-to-secondary leak on the Braidwood Unit 1 C Steam Generator and have been further enhanced by lowering the Alert and Alarm setpoints on each instrument. The Steam Jet Air Ejector/Gland Steam Process Radiation Monitor is the most sensitive instrument monitoring Xenon-133 equivalent activity and is used to inform the operator of a primary-to-secondary leak. The Main Steam Area Radiation Monitors are installed on each Main Steam line and will determine which Steam Generator is leaking. These instruments give Braidwood Station real-time indication of a primary-to-secondary leak. Actions are proceduralized in Braidwood Operating Abnormal Procedure (BwOA) Secondary-8, "Steam Generator Tube Leak" and Braidwood Chemistry Procedure (BwCP) 310-4, "Steam Generator-Primary To Secondary Tube Leak Rate" to monitor these instruments and obtain samples to accurately determine the primary to secondary leak rate. The area radiation monitors and the process radiation monitors do not give an accurate gallon per day leakrate but can be used to estimate the leak rate. The ability of the process radiation monitors and area radiation monitors to estimate the leakrate is similar to the ability of the N-16 instrumentation to estimate the leak rate.

Installation of N-16 monitors that provide indication to control room operators would cost Braidwood Station approximately \$400,000 per unit. As discussed above, existing equipment has been enhanced to perform a similar function.

- 4) **Discuss the capability of Braidwood emergency procedures to enable the operators to safely mitigate a multiple steam generator tube failure. Include in your discussion any analyses used to formulate your approach.**

The actions taken in the Braidwood Emergency Operating Procedures (BwEP) to mitigate multiple Steam Generator Tube Ruptures (SGTR) are based on the guidance provided in the Westinghouse Owners Group Guidelines. The background document for these guidelines provides the bases for all actions taken. The following summarizes the actions taken to address multiple tube failures:

BwEP-3, "Steam Generator Tube Rupture," is written to mitigate a range of tube ruptures from small ruptures of one tube up to and including large ruptures of multiple tubes. If Reactor Coolant System (RCS) subcooling or pressurizer level can not be maintained due to multiple tube ruptures in one steam generator, BwEP-3 will require the operator to transition to Braidwood Contingency Action Procedure (BwCA)-3.1, "SGTR With Loss of Reactor Coolant, Subcooled Recovery Desired." BwCA-3.1 will cool down the RCS to cold shutdown conditions to allow depressurizing the RCS, thus stopping all steam generator tube leakage.

BwEP-3 also mitigates simultaneous leaks in multiple steam generators by directing isolation of all ruptured steam generators prior to cooling down the RCS.

- 5) **Define the term 'known leakage' as used in Attachment B under the heading, "Controls When Known Leakage Exists."**

'Known Leakage' refers to an identified primary-to-secondary leak. This section of Attachment B specifies the actions that will be taken once a primary-to-secondary leak is detected by any means, i.e. area radiation monitors, process radiation monitors, chemistry sample results, etc.