

May 22, 1997

Ms. Irene Johnson, Acting Manager
Nuclear Regulatory Services
Commonwealth Edison Company
Executive Towers West III
1400 Opus Place, Suite 500
Downers Grove, IL 60515

SUBJECT: CORRECTION TO AMENDMENT (TAC NOS. M96498, M96499, M96500 AND M96501)

Dear Ms. Johnson:

On May 14, 1997, the U.S. Nuclear Regulatory Commission (Commission) issued Amendment Nos. 82 to Facility Operating License Nos. NPF-72 and NPF-77 for Braidwood Station, Unit Nos. 1 and 2. In the Safety Evaluation (SE) related to those amendments, there were two minor misstatements in Section 3.10, "Hydrodynamic Loads on the Tube Support Plates." The first of these was the use of the word "evaluate" in the third paragraph of this section rather than the more appropriate characterization expressed by the word "investigate." Secondly, in that same paragraph, the staff did not intend to state that it would issue the results of this continuing effort in a forthcoming SE. Finally, the SE was inadvertently left undated.

Accordingly, please remove pages 19, 20 and 22 of the SE and replace them with the enclosed corrected pages. If you have any questions on this matter, please contact me at (301) 415-3023.

Sincerely,

Original signed by:

M. David Lynch, Senior Project Manager
Project Directorate III-2
Division of Reactor Projects - III/IV
Office of Nuclear Reactor Regulation

Docket Nos. STN 50-456, STN 50-457

Enclosure: Corrected SE pages

cc w/encl: see next page

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I. Johnson
Commonwealth Edison Company

Braidwood Station
Unit Nos. 1 and 2

cc:

Michael Miller, Esquire
Sidley and Austin
One First National Plaza
Chicago, Illinois 60603

Mr. Ron Stephens
Illinois Emergency Services
and Disaster Agency
110 East Adams Street
Springfield, Illinois 62706

Regional Administrator
U.S. NRC, Region III
801 Warrenville Road
Lisle, Illinois 60532-4351

Chairman
Will County Board of Supervisors
Will County Board Courthouse
Joliet, Illinois 60434

Illinois Department of
Nuclear Safety
Office of Nuclear Facility Safety
1035 Outer Park Drive
Springfield, Illinois 62704

Ms. Lorraine Creek
Rt. 1, Box 182
Manteno, Illinois 60950

Document Control Desk-Licensing
Commonwealth Edison Company
1400 Opus Place, Suite 400
Downers Grove, Illinois 60515

Attorney General
500 South Second Street
Springfield, Illinois 62701

Mr. William P. Poirier
Westinghouse Electric Corporation
Energy Systems Business Unit
Post Office Box 355, Bay 236 West
Pittsburgh, Pennsylvania 15230

George L. Edgar
Morgan, Lewis and Bochiuss
1800 M Street, N.W.
Washington, DC 20036

Joseph Gallo
Gallo & Ross
1250 Eye St., N.W., Suite 302
Washington, DC 20005

Commonwealth Edison Company
Braidwood Station Manager
Rt. 1, Box 84
Braceville, Illinois 60407

Ms. Bridget Little Rorem
Appleseed Coordinator
117 North Linden Street
Essex, Illinois 60935

EIS Review Coordinator
U.S. Environmental Protection Agency
77 W. Jackson Blvd.
Chicago, Illinois 60604-3590

Howard A. Learner
Environmental Law and Policy
Center of the Midwest
203 North LaSalle Street
Suite 1390
Chicago, Illinois 60601

Mr. H. G. Stanley
Site Vice President
Braidwood Station
Commonwealth Edison Company
RR #1, Box 84
Braceville, IL 60407

U.S. Nuclear Regulatory Commission
Braidwood Resident Inspectors Office
Rural Route #1, Box 79
Braceville, Illinois 60407

In the meeting held with the staff on April 30, 1997, on the preliminary results of the SG tube EC examination conducted during the present Braidwood, Unit 1, refueling outage, the licensee stated that while there was no detectable degradation (NDD) of the locked tubes or of the sleeves at the expanded joints at the SG tube/TSP intersections, 49 of the 85 locked SG tubes in the four Braidwood, Unit 1, SGs were found to have circumferential crack indications at the TTS in the roll transition zone. To resolve this issue for Braidwood, Unit 1, and restore the original design basis for the locked SG tubes, the licensee proposed in its letter dated April 29, 1997, to install Westinghouse elevated laser-welded sleeves in all 89 Braidwood, Unit 1, locked SG tubes. The staff found this proposal to install sleeves in the Braidwood, Unit 1, locked SG tubes at the TTS to be acceptable as stated in Section 3.2 of this SE.

On the basis of the acceptability of the sleeving installation discussed above, the staff finds that its prior acceptance, in the SE issued on November 9, 1995, of the licensee's structural evaluation of the installation of the 85 Braidwood, Unit 1, locked SG tubes remains applicable. Therefore, the licensee's prior structural analysis of the locked SG tube installation is acceptable for the proposed extension of the 1.0 volt and 3.0 volt IPC presently in the Braidwood, Unit 1, TSs for one additional Braidwood, Unit 1, operating cycle.

3.10 Hydrodynamic Loads on the Tube Support Plates

In Section 4.3 of the SE issued on November 9, 1995, the staff reviewed and found acceptable, the licensee's analysis of the hydrodynamic loads on the TSPs in the event of an MSLB. The staff finds that its prior conclusion in Section 4.3.5 of the SE cited above regarding the proposed values of the differential pressures across the TSPs, is still bounding. The staff does not expect the variation caused by multi-dimensional flow effects to cause this bounding TSP deflection to be exceeded as discussed below. On this basis, the staff finds that the licensee's prior estimate of the hydrodynamic loads on the TSPs under postulated accident conditions, remains acceptable for the proposed extension of the 1.0 volt and 3.0 volt IPC for one additional Braidwood, Unit 1, operating cycle.

In a meeting in mid-1996 with a subcommittee of the Advisory Committee on Reactor Safeguards (ACRS) subsequent to issuing Braidwood, Unit 1, License Amendment No. 69, some members of the ACRS Subcommittee stated a concern relating to the use of a one-dimensional code (i.e., RELAP5 MOD3) to calculate the hydrodynamic loads on the TSPs. The specific concern of these ACRS members was that the effect of a two-dimensional flow distribution above the topmost TSP would give rise to a radial variation in the hydrodynamic pressure loading on the topmost TSP.

The staff stated in response to this issue that it believed there was sufficient conservatism in each facet of the licensee's analysis of its locked SG tube proposal to amply account for the effect of any variations in TSP pressure loadings across the TSP radius. However, the staff committed to investigate this effect on the TSP displacements under postulated accident conditions. This effort is continuing.

The staff approval of the extension of the 1.0 volt and 3.0 volt IPC for one additional operating cycle at Braidwood, Unit 1, is subject to confirmation by the licensee in its forthcoming 90-Day Inspection Report that the concern of the ACRS Subcommittee members cited above, does not cause the TSP displacements under postulated accident conditions to exceed the postulated maximum displacement of 0.100 inches.

3.11 Radiological Consequences

In Section 4.6 of the SE issued in conjunction with Braidwood License Amendment No. 69 on November 9, 1995, the staff provided its evaluation of the radiological consequences of the licensee's proposal to adopt the 1.0 volt and 3.0 volt IPC. This radiological evaluation was performed using the licensee's proposal to maintain the then existing TS value of the maximum permissible primary coolant dose equivalent (DE) iodine-131 concentration of 0.35 microcuries per gram of coolant. The licensee stated that its Braidwood Station site allowable primary-to-secondary SG tube leakage from a faulted SG and the other three SGs assuming this DE iodine-131 concentration, was 26.8 gpm. This value of site specific SG leakage rate would thereby result in a 2-hour Exclusion Area Boundary (EAB) thyroid dose of about 12 rem.

In proposing to extend the applicability of the 1.0 volt and 3.0 volt IPC presently in the Braidwood, Unit 1, TSs, the licensee has not proposed to revise the present iodine-131 DE primary coolant concentration. Accordingly, the prior staff evaluation of the radiological consequences of the 1.0 volt and 3.0 volt IPC presented in Section 4.6 of the prior SE issued on November 9, 1995, remains applicable to the proposed extension of the voltage-based repair criteria. In that the estimated two-hour EAB thyroid dose of 12 rem and the relatively small whole-body radiation exposure (i.e., less than 0.3 rem) are still small fractions of the radiation exposure guideline values in 10 CFR Part 100, we find that the radiological consequences of extending the 1.0 volt and 3.0 volt IPC in the Braidwood, Unit 1, TSs for one additional operating cycle, are acceptable. This finding is based on the staff's acceptance criteria for radiation exposure of 30 rem to the thyroid and 2.5 rem for whole-body exposure as shown in Table 1 of the SE issued on August 18, 1994, for Braidwood, Unit 1.

Based on the foregoing considerations, the staff concludes that the radiological consequences outside containment for a postulated MSLB for Braidwood, Unit 1, are acceptable. This finding is based on the projected primary-to-secondary SG tube leakage not exceeding 26.8 gpm at Braidwood, Unit 1, at EOC-7. Confirmation that the regulatory requirements for allowable dose exposures are satisfied will be submitted in the forthcoming Braidwood, Unit 1, 90-Day Inspection Report.

4.0 APPROVAL OF TECHNICAL SPECIFICATION REVISION

The only substantive change proposed for TS Section 4.4.5.2 is to extend the applicability of the 1.0 volt and 3.0 volt IPC from the end of the Braidwood,

7.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: S. M. Coffin
M. D. Lynch

Date: May 14, 1997