**Commonwealth Edison**
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January 14, 1983

Mr. James G. Keppler, Regional Administrator
Directorate of Inspection and
Enforcement - Region III
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60137

Subject: Braidwood Station Units 1 & 2
I&E Inspection Report
No. 50-456/82-06

Reference (a): December 10, 1982 letter from C. E. Norelius to Cordell Reed.

Dear Mr. Keppler:

Reference (a) provided the results of an inspection conducted by Messrs. R. Mendez and K. Naidu on October 21-22 and 26-27, 1982 of activities at Braidwood Station. During the inspection it was apparent that certain activities were not in compliance with NRC requirements. Attachment A to this letter contains Commonwealth Edison's response to the Notice of Violation appended to reference (a).

In reviewing the circumstances surrounding these violations, it has been determined that not all of the examples cited involve noncompliance with NRC regulations. The information supporting this conclusion is presented on a case-by-case basis in the responses contained in Attachment A. Accordingly, it is respectfully requested that Violations 2 and 3 be withdrawn. We would be happy to discuss this further at your convenience.

To the best of my knowledge and belief the statements contained herein and in the attachment are true and correct. In some respects these statements are not based on my personal knowledge but upon information furnished by other Commonwealth Edison employees, contractors, and consultants. Such information has been reviewed in accordance with Company practice and I believe it to be reliable.

Please address further questions regarding this matter to this office.

Very truly yours,

L. O. DelGeorge

L. O. DelGeorge
Director of Nuclear Licensing

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ATTACHMENT A

RESPONSE TO NOTICE OF VIOLATION

VIOLATION 1

10 CFR 50 Appendix B, Criterion III, states in part, "Measures shall be established to assure that applicable regulatory requirements and the design basis...as specified in the license application, for those structures and components to which this appendix applies are correctly translated into specifications...and instructions. These measures shall include provisions to assure that appropriate quality standards are specified...and deviations from such standards are controlled."

Commonwealth Edison Company Topical Report CE-1-A, "Quality Assurance Program for Nuclear Generating Stations," Revision 15, Sections 3.1, dated January 2, 1981, states in part, "...designs and materials will conform to...standards, regulatory requirements, SAR commitments, and appropriate quality standards as applicable."

Contrary to the above, the following instances of inadequate design control were identified:

a. The Braidwood FSAR Section 8.2.1.4.2.1 commits to compliance with IEEE 384-1974, which delineates methods of acceptable separation between Class 1E and non-Class 1E cable trays, and states that minimum separation be at least one inch. However, the inspector observed the following instances of safety-related trays in physical contact with non-safety trays:

   (1) 1696H C1E and 1713D C1B
   (2) 11335B C1E and 11335F P1B
   (3) Safety Cable 1SX001 and 1689A P1E

   Additionally, the horizontal spacing between Class 1E tray node 21398S P2E and non-Class 1E tray 21384T P2B was less than the required one inch.

b. IEEE 384-1974 further states, "Where plant arrangements preclude maintaining the minimum separation distance, the...circuits shall be run in enclosed raceways that qualify as barriers..." However, as of October 27, 1982, the licensee had not designated barriers on drawings or other appropriate documentation where the minimum separation from non-safety trays could not be met for Class 1E tray Sections 21398T C2E and 123028C C1E.

Response to 1a

IEEE 384-1974 states in Section 4.6.1(3) that "the effects of lesser separation (than that described in 4.6.1(1)) or the absence of electrical isolation between the Non-Class 1E circuits or associated circuits shall be analyzed to demonstrate that the Class 1E circuits are not degraded below an acceptable level or they become associated circuits."

Sargent & Lundy, as part of their electrical separation design review, identifies all instances where the design separation criteria is violated. An analysis is performed on each identified violation to show that the violation does not degrade the Class 1E raceway and is therefore acceptable. This analysis is based on the segregation of the cable raceways involved and/or the Class 1E cables in the affected raceways. If the violation is determined to be unacceptable, then the affected raceways would require a redesign to correct the adverse condition (e.g. add covers to trays, move cable raceways, etc.). Each violation is documented and approved by an engineer. This separation review is an ongoing effort. All violations will be reviewed and documented prior to fuel load.

The specific cases observed during the inspection and documented in the inspection report involved instances where the NRC reported that the separation between safety-related and non-safety-related cable trays was less than the one inch minimum vertical separation required by IEEE 384-1974 Section 4.6.1(1). As noted below, not all of the cases are examples of noncompliance.

1. Separation Between Tray Section 1696H C1E and Tray Section 1713 C1B

   This deviation was observed and documented as part of the separation design review. This documentation is on file with the cable separation criteria deviations. This is not an example of noncompliance because appropriate design control was employed.

2. Separation Between Tray Section 11335B C1E and Tray Section 11335F P1B

   This contact was not identified in the design process or reported in the installation process.

   Corrective Action Taken and Results Achieved

   One of these trays will be relocated to maintain the required one inch separation.

Corrective Action Taken to Avoid Further Noncompliance

The portion of Procedure 4.3.5 which requires reporting of installation problems will be reviewed with the appropriate electrical contractor personnel.

Date When Full Compliance Will Be Achieved

The cable tray design will be revised by January 31, 1983. The change will be implemented prior to fuel load. Contractor personnel will be reminded of the reporting requirements by January 14, 1983.

3. Separation Between Safety Cable 1SX001 and Tray Section 1689A P1E

IEEE 384 delineates methods of acceptable separation between Class 1E and Non-Class 1E cable raceways. The situation observed there is the case of a safety-related cable exiting a conduit and traveling for a short distance in free air (about 1') to a safety-related cable tray. This is not a violation of any of the separation methods in IEEE 384 since IEEE 384 does not address the separtion of cables traveling on free air. This is, therefore, not an example of noncompliance.

4. Horizontal Separation Between Tray Section 21398S P2E and Tray Section 21384T P2B

The horizontal spacing between the identified cable tray sections was designed to be 3" (per Sargent & Lundy electrical installation drawings). If the electrical contractor installs the cable trays to the dimensions given on the electrical installation drawings and uses the maximum installation tolerances which is allowed (+ 1" horizontal), then it is possible to install the trays with 1" horizontal separation.

Corrective Action Taken and Results Achieved

Covers will be added to the trays.

Corrective Action Taken to Avoid Further Noncompliance

A note will be added to assure that a cover is installed on all cable trays that results in less than the minimun separation distance as a result of the contractor imposing installation tolerances.

Date When Full Compliance Will Be Achieved

The design drawings will be issued by January 31, 1983. A review of other cable trays for this situation will be completed prior to fuel load.

Response to Violation 1b

Corrective Action Taken and Results Achieved

Covers will be added to cable tray Sections 21398T C2E and 12028C C1E to restore separation.

Corrective Action Taken to Avoid Further Noncompliance

Appropriate notes will be added to the Sargent & Lundy electrical installation design drawings to specific the addition of cable tray covers where the as-built separation is less than one inch.

Date When Full Compliance Will Be Achieved

The revised drawings will be issued by January 31, 1983.

VIOLATION 2

10 CFR Appendix B, Criterion X, states in part, "A program for inspection and activities affecting quality shall be established and executed...to verify conformance with documented instructions, procedures...for accomplishing the activity."

Commonwealth Edison Company Topical Report CE-1-A, Revision 20, Section 10, states in part, "Quality Assurance inspections...will be conducted...during construction...to verify conformance to applicable drawings, instructions, and procedures as necessary to verify quality."

L. K. Comstock and Company Braidwood Procedure 4.3.8, Revision June 3, 1982, Section 3.2.8.1, states in part, "Cables will be routed as designated on the Cable Pull Cards.... There will be no deviations for cables in Class I areas without prior written approval by Commonwealth Edison Lead Electrical Engineer.... In all cases LKC Engineering will be contacted prior to pull if deviations occur."

Contrary to the above, Class 1E cable 1SX001 was not routed as designated per its respective pull card. Additionally, the QC inspection performed to verify proper installation failed to identify the apparent deviation. As a result, the cable inspection report was signed off, although the routing of the cable was not in accordance with the cable pull card.

Response 2

Sargent & Lundy design drawing 6E-0-3000A sheet 3 item C.5 states: "A cable entering a pan within 3 feet of a routing point marker, (1) may not have that routing point number listed in its routing, even though the cable does cross the point or (2) may have that routing point even though the cable does not cross the routing point. Each of these conditions is acceptable and no notification is required." This provision is included to acknowledge the minor dimensional variations which are inherent in the process of placing routing markers on cable pans in the field on the basis of scale drawings.

The routing of cable 1SX001 is specified as follows: 1R210, 1502F, then the conduit. As installed, the cable is routed through riser 1R210, 1502F, 1573F, then the conduit. According to S&L drawing item C.5, this is acceptable. Based on the correct routing of cable 1SX001 there would be no need to identify the cable routing as a deviaton. This is not an example of non-compliance because the routing was accomplished in accordance with the design documents.

VIOLATION 3

10 CFR 50 Appendix B, Criterion V, states in part, "Activities affecting qulaity shall be prescribed by documented instructions, procedures...and shall be accomplished in accordance with these instructions, procedures..."

Commonwealth Edison Company Topical Report CE-1-A, Revision 14, Section 5, states in part, "The quality assurance actions carried out for...construction...activities will be described in documented instructions, procedures...or checklists. These documents will assist personnel in assuring that important activities have been performed."

L. K. Comstock Braidwood Procedure 4.3.8, Revision June 3, 1982, Sections 3.2.11.3, states in part, "Cables which travel in free air and continue to equipment unsupported by electrical raceway shall maintain the following separation. If any field condition prevents compliance with the following separation criteria, work shall halt and the cable pulling foreman shall notify the LKC Field Engineer for resolution." Section 3.2.11.3.2, states, "12" between safety related (Category E, R, and N) and non-safety related (Category B) cables.

L. K. Comstock Braidwood Procedure 4.11.1, Revision June 3, 1982, Section 3.2, states in part, "A Nonconformance Report...shall be initiated by Quality Control personnel on detecting of deviations... detailing the nonconformity and applicable standard, or specifications."

Contrary to the above requirements, the inspector observed four locations where the minimum separation criteria between Class 1E and Non-Class 1E cables which travel in free air was less than the required twelve inches. In addition, no hold tags were evident in these areas or a Nonconformance Report issued that dealt specifically with four locations. The following node sections where safety and non-safety cables enter or exit their respective trays wre observed to be in apparent violation:

a. 1696H-C1E and 1713D-C1B
b. 17771J-C2E and 11771S-K2B
c. 11798J-C2E and 11798S-K2B
d. 11721M-C2E and 11837S-K2B

Response 3

None of the examples cited represents an item of noncompliance. As described below, the separation in each of the four examples was installed or was being installed in accordance with the Comstock procedure:

Items a and d:

The separation criterion in L. K. Comstock's procedure 4.3.8 requires that separation be maintained between Class 1E and Non 1E cables in free air. This criterion was written into the procedure to address the separation of two or more cables in free air such as at the interface between a cable raceway and equipment and panels, and as such, would not be held stationary in free air by any barriers.

The locations identified as examples a and d involve the separation of cables in air along their routing from cables which are in raceway. The separation required by L. K. Comstock's procedure for cables in free air is not imposed here since the cables are not in free air but are held in place by a cable tray.

To avoid further misunderstandings L. K. Comstock's procedure 4.3.8 will be revised by February 18, 1983 to clarify separation requirements between cable in raceways and cables in open air.

Item b:

At the time of the NRC inspection, cable work in and under the cabinet was in progress. Cable grip bar supports were being welded in place and cables transferred to the permanent supports. The twelve inch separation criteria was satisfied when this work was completed.

Subsequently, additional cables have been installed and a reportable condition has been identified by L. K. Comstock. This is being reviewed in accordance with the established procedures but does not relate to the example cited.

Item c:

Cables entering equipment at these node points were previously identified by L. K. Comstock NCR 419 which addresses the 12" separation problem. Additionally, cables were temporarily supported under the panel; permanent cable grip bar supports have not been installed to date. Upon the completion of installation of the permanent bar supports, corrective action will be taken to resolve the 12" separation problem.

VIOLATION 4

10 CFR Appendix B, Criterion XV, states in part, "Measures shall be established to control materials, parts, or components which do not conform to requirements in order to prevent their inadvertent use or installation. These measures shall include...procedures for identifications, documentation...disposition, and notification to affected organizations. Nonconforming items shall be reviewed and accepted, rejected...in accordance with documented procedures."

Commonwealth Edison Company Topical Report CE-1-A, Revision 20, Section 15, states in part, "Items involving construction...which are found nonconforming to the engineering requirements or specifications...or workmanship standards...will be controlled to prevent their inadvertent use of installation. Nonconforming items are identified, documented and segregated for disposition...Nonconforming items accepted "as-is" or reworked to an acceptable condition shall be identified through documentation records and in a manner that will establish the condition as installed. When the responsible CECo personnel authorizes acceptance of the item "as-is" or rework of the nonconforming item, the action will be documented."

Commonwealth Edison Topical Report CE-1-A, Revision 9, Section 14, states in part, "Nonconforming material and equipment will be identified though the use of a Quality Assurance "Hold tag"... Such "Hold"...tags shall only be removed at the direction of Quality Assurance personnel.

Contrary to the above, as of October 24, 1982, measures established by the licensee to identify nonconforming components did not assure the identification of nonconforming equipment as follows:

a. During a receipt inspection performed on October 2, 1979, the receipt inspector identified five cable reels which arrived with damaged flanges. The receipt inspector suggested and noted on the Receipt Inspection checklist (MRR 5308) that the damaged reels be inspected by CECo QC for recommended action. However, there appears to be no documented evidence that the apparent nonconforming condition was dispositioned or a hold tag or a NCR issued to specifically identify the cable reels or authorize acceptance of the reels. The affected cable reels are as follows: 20 BR, 16 BR, BR-129, BR-131, and BR-165.

b. The inspector observed a damaged cable reel in the Auxiliary Building lying on the floor at the 426' elevation. There appeared to be no hold tags evident in the immediate area or hold tags physically placed on cable reel BR 12. Consequently, since the cable reel had not been identified there was no mechanism that could prevent its inadvertent use in the field.

Response 4

Corrective Action Taken and Results Achieved

The damaged cable reel identified in example (b) was removed from the building and re-reeled. This cable was found to be in good condition and was acceptable for use. This is documented in L. K. Comstock Inspection Correction Report 855.

The five cable reels identified in example (a) had not been released for use at the time of the NRC inspection. As noted on the Material Receipt Inspection Report (MRR 5303), the receiving inspector noted that the damaged reels were to be inspected for acceptability. Material cannot be released for use in the field until interim approval is granted. Interim approval can be granted only after CECo PCD and QA inspect the materials, parts, or components for acceptability. The acceptability of the material is so indicated by the signatures of the PCD and QA engineers on the MRR. If there was a question with regards to the acceptability of the cable, a CECo NCR or rejection of the cable would have been initiated and cable either scrapped or returned to the vendor. All cable on the identified reels (BR20, 16, 129, 131 and 165) has been found to be acceptable.

Corrective Action Taken to Avoid Further Noncompliance

The procedures for proper disposition of damaged cable reels will be reviewed with the appropriate L. K. Comstock personnel.

Date When Full Compliance Will Be Achieved

The Comstock training session was held on January 12, 1983.