



Commonwealth Edison

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May 4, 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: Byron Station Units 1 and 2
Supplemental Response to
IE Inspection Report Nos.
50-454/82-17 and 50-455/82-12
NRC Docket Nos. 50-454/455

References (a): D. L. Farrar letter to J. G. Keppler
dated February 10, 1983

(b): C. E. Norelius letter to Cordell Reed
dated January 11, 1983

Dear Mr. Keppler:

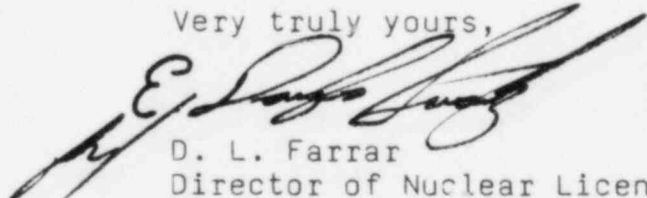
Reference (a) provided the Commonwealth Edison Company thirty (30) day response to the Reference (b) inspection report. A subsequent management meeting was held on March 7, 1983 with representatives of your office, Sargent & Lundy Engineers, and Commonwealth Edison to discuss this matter. The purpose of this letter is to provide a revised response to Reference (b) as a result of this management meeting.

To the best of my knowledge and belief, the statements contained 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 and Consultants. Such information has been reviewed in accordance with Company practice and I believe it to be reliable.

Please address any questions that you or your staff may have concerning this matter to this office.

Very truly yours,

8305200522 830517
PDR ADOCK 05000454
Q PDR



D. L. Farrar
Director of Nuclear Licensing

Attachment

cc: RIII Inspector - Byron
R. S. Love - RIII

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MAY 6 1983

RE-RESPONSE TO NOTICE OF VIOLATION

Re-response to NRC Inspection Report 50-454/82-17 and 50-455/82-12, letter dated January 11, 1983. This re-response is being submitted as a result of the management meeting held on March 7, 1983, with representatives of NRC Region III, Commonwealth Edison Co. and Sargent & Lundy.

Violation (50-454/82-17-05; 50-455/82-12-05)

During a tour of the power block with personnel from the Power Systems Branch of NRR, it was observed that non-class 1E cable tray 11445U-C2B passes under Class 1E ladder type cable tray 11441Q-C2E with a vertical separation of approximately 10", metal to metal. The subject trays are located in Area 5 of the Auxiliary Building at the 426' elevation. In reviewing the pertinent raceway installation drawing 1-3052A, Revision P, and in discussions with the licensee, it was determined that there are no requirements for the installation of raceway covers or barriers indicated on the subject drawing for tray 11445U-C2B. It was also observed in the upper cable spreading room that non-Class 1E cable tray 22080D-C1B passes under Class 1E ladder type cable tray 22129C-C1E with a vertical separation of approximately 10 3/4", metal to metal.

Paragraph 8.3.1.4.2.2 of the Byron/Braidwood FSAR states in part that the vertical separation between Non-Safety Related (non-class 1E) and Safety Related (Class 1E) cable trays is 12", metal to metal.

The Region III inspector informed the licensee that failure to promptly identify and control the above nonconforming conditions in accordance with QA program provisions is an item of noncompliance, contrary to the requirements of Criterion XVI of 10 CFR 50, Appendix B (50-454/82-17-05; 50-455/82-12-05).

CECo Response to Excerpt 1 from Inspection Report

IEEE 384-1974 states in Section 4.6.1 (3) that "the effects of lesser separation (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 normal electrical separation design review, identifies all instances where the separation shown on the electrical installation (EI) drawings is less than the basic separation distance specified in the S&L Design Criteria (i.e., less than specified on IEEE 384-1974 and/or the FSAR). An analysis is performed on each identified violation to show that the designed separation 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 designed separation is determined to be unacceptable, then the affected raceways would require a redesign to correct the adverse condition (e.g., add covers to trays, relocate cable raceways, etc.). Each violation is documented on a Cable Separation Criteria Violation (CSCV) form, and approved by an engineer. This separation review is an "ongoing" effort and includes the review of changes made as a result of ECN's and FCR's. All violations will be reviewed and documented by S&L prior to fuel load. All of the CSCV forms are indexed by drawing number for ease of reference and are kept on permanent file at Sargent & Lundy offices.

The Electrical Contractor on site installs and inspects the electrical installation to the requirements of the approved design documents which are issued for construction (i.e., drawings and ECN's). The installation contractor does not inspect the installation for compliance to the requirements of IEEE Standards or the FSAR.

Commonwealth Edison has assigned the responsibility to insure that the design is in compliance with FSAR commitments to S&L and has assigned to the contractor the responsibility of installing and inspecting the installation to the requirements of the approved design documents.

In order to provide a "visible" mechanism where by it will be possible to determine which violations have been identified and resolved by a documented analysis by S&L, a symbol will be added on the design drawings for each case where the designed separation distance between raceways is less than the basic separation distance specified in the S&L Design Criteria, but which is justified by an analysis documented in S&L's "CSCV" files. The addition of this symbol to the drawings is meant for information purposes only and does not impact the aforementioned division of responsibility.

General notes have also been added to the cable tray drawings in order to safeguard against the installation of cable trays with a separation distance less than the minimum specified in the Design Criteria. These notes will not allow the contractor to use his installation tolerances if the use of such tolerances will result in an unacceptable installation (e.g., separation of less than 1"). The notes also would require the contractor to install cable tray covers on installations when the raceways were designed to maintain the basic separation; but as a result of the installation tolerances, the basic separation was violated.

Also, the installation contractors Procedure No. 9C, "Class 1 Cable Pan Cover Installation", Revision 1, dated November 22, 1982, requires the contractor to identify separation distances of less than one inch which may result due to the installation of the cable pan cover. This procedure states in part "Where one inch clearance cannot be maintained, the cover installation will be documented on Form HP-9C-3 and will be submitted to the owner for record.".... The CECO Electrical Construction Department maintains a file of the HP-9C-3 reports received from the contractor and also transmits copies to the Project Engineering Department for analysis and documentation by S&L.

Corrective Action Taken And Results Achieved

The specific cases observed by the NRC during their tour of the power block have been identified on CSCV's and the appropriate corrective action has been incorporated into the design documents. Although these specific cases were not identified as violations at the time of the NRC tour, they were identified as violations to the design criteria during a subsequent review that was performed on all of the cable tray drawings for separation violations.

Corrective Action Taken To Avoid Further Noncompliance

Inasmuch as the cable tray installation is essentially complete at Byron, a walkdown of the cable tray system has been initiated to verify that the separation specified in the Design Criteria has been maintained even after the use of installation tolerances. Any modifications required as a result of the walkdown (i.e., addition of covers or redesign of trays) will be incorporated into the design documents. All results of this walkdown will be documented on inspection forms for each area.

Date When Full Compliance Will Be Achieved

All inspection forms as a result of the walkdown will be transmitted to S&L by May 31, 1983.

S&L will complete their review of these inspection forms by June 30, 1983.

Violation (50-454/82-17-06; 50-455/82-12-06)

During a tour of the power block, the inspector observed that minimal progress is being made in the identification and resolution of the cable separation problems inside Class IE panels, cabinets, and switchgears. Following is a brief history of the separation problems:

- (1) On December 18, 1980, CECO prepared NCR F-580 to document the fact that Class IE and non-Class IE cables were in direct contact with one another inside 480V Unit Substation 1AP98E, 4160V switchgear 1AP05E, 4160V switchgear 1AP06E, 4160V switchgear 2AP05E, and 4160V switchgear 2AP06E. IEEE standard 384-1974, as stipulated in the Byron/Braidwood Final Safety Analysis Report, requires that redundant Class IE cables/wiring be separated by a minimum distance of 6 inches, or barriers be installed between the cables/wiring, or an analysis may be performed.
- (2) During the week of July 7-10, 1981, Region III inspectors met with the licensee and Sargent and Lundy (S&L) representatives to discuss the corrective action to be taken to correct the lack of separation identified by NCR F-580 and the corrective action to preclude repetition. During this meeting, the licensee stated that construction personnel would be instructed to rework the cables identified by NCR F-580 and if these efforts to achieve the separation criteria were unsuccessful, the licensee would document this condition to S&L, where an analysis would be performed to demonstrate that the lack of separation would not result in a degradation of the performance of the cables' safety related function. The licensee further stated that current procedures would be revised or a new procedure written to assure that each instance of inadequate cable separation would be identified and controlled. During this inspection, the inspector made this matter an unresolved item pending a review of the licensee's corrective action during a subsequent inspection. Tracking numbers 50-454/81-08-05 and 50-455/81-07-04 were assigned.
- (3) Hatfield Electric procedure number 11, Class I Cable Termination and Splicing, was revised to include the inspection attribute, cable separation inside electrical equipment. Paragraph 5.1.5.2 of the subject procedure states in part, "If any field conditions prevents compliance with the following separation criteria, HECO QA/QC should be notified per Procedure #6, and reported to CECO for disposition." Procedure Number 6 is titled, "Reporting of Damaged or Nonconforming Material or Equipment".
- (4) During this reporting period, the inspector made a spot check of panels and cabinets in the Unit 1 Auxiliary Electrical Equipment Room, Auxiliary Building, 451' elevation, and it was observed that there were numerous examples of Class IE and non-Class IE cables being ty-wrapped together. In panel 1PA20JA, it was observed that a Division 1 Engineered Safety Feature (ESF) cable was ty-wrapped to a Division 2 ESF associated cable. In the panels checked, the inspector did not observe any Hold Tags associated with cable separation problems in the panels. In discussions with the licensee, it was learned that the subject panels had as yet to be checked for cable separation compliance to the requirements of IEEE-384.

The inspector informed the licensee that failure to promptly identify and control the above nonconforming conditions in accordance with QA program provisions is another example of noncompliance to the requirements of Criterion XVI of 10 CFR 50, Appendix B (50-454/82-17-06; 50-455/82-12-06).

CECo Response to Excerpt 2 from Inspection Report

It is the licensee's position that this is not a violation of the requirements of IEEE-384. In fact, IEEE-420 allows the bundling together of Class 1E and Non-Class 1E circuits inside of panels. The lesser separation requirements of both of these IEEE Standards is allowed as long as an analysis is performed to determine acceptability.

In February 1973, S&L established within their organization, Interface Review Reports (IRR). The purpose of the IRR's was to establish a method for the documentation and approval of safety-related/non-safety-related circuit interfaces. The IRR's have also been used to address the separation of cables in free air and inside electrical equipment. An IRR is prepared for each interface between safety-related and non-safety-related cables. Potential interfaces are identified from a computer printout of equipment containing safety-related and non-safety-related cables. Each interface is reviewed and analyzed by an engineer to determine the effect on the safety-related function involved. This analysis, which includes a review of the schematics for the involved circuits, is documented on an IRR form and must be approved by the Senior Electrical Project Engineer. The IRR process is an ongoing effort at S&L.

In order to provide a "visible" mechanism where by it will be possible to identify which interfaces have been analyzed by S&L, Sargent and Lundy will prepare a report which will include a list of the specific IRR's (sorted by the non-class 1E cable numbers) which have been prepared and approved by S&L. They will also develop a list of the potential interfaces which, although not currently documented in the S&L file, will be addressed and will eventually be included in the S&L files. These reports will be available to the CECO Electrical Construction Department to assist them in the dispositioning of the Cable Separation Conflict Reports prepared by the contractor. We anticipate having these reports available on site by May 31, 1983.

Corrective Action Taken and Results Achieved

Assuming the intent of the NRC inspectors item of noncompliance was to address the failure of the electrical contractor to report cable separation problems per their Procedure No. 6, the following actions have been taken:

1. Following the NRC's inspection the contractor was instructed to identify panels which contained cable separation problems per the requirements of their Procedure No. 11.
2. As of December 15, 1982, the contractor has identified approximately 50 panels which contained violations of the criteria of their Procedure No. 11. The contractor has placed Hold Tags on these panels and has notified CECO per their Procedure No. 6.

Corrective Action to Avoid Further Noncompliance

The Electrical Contractors procedures which contain inspection attributes for cable separation have been revised. While the cable separation criteria contained in these procedures has remained the same, the identification and reporting requirements have been changed. A new form titled "Cable Separation Conflict Report" (CSCR) has been implemented.

When the contractor discovers an apparent case of conflicting segregation he initiates a CSCR which contains the following information:

1. The date.
2. The area location by building, elevation and column.
3. The drawing number.
4. Either the equipment ID or the nearest routing node.
5. The cable number and segregation code.
6. A listing of all the cables and their segregation codes which are in separation conflict.
7. Whether the conflict is a result of the criteria of their Procedure 10 or 11.

The contractor then tags the equipment or pan with a tag containing the CSCR report number, the date and the equipment ID or routing node.

These CSCR reports are submitted to the CECO electrical construction department.

Currently PCD maintains a file of CSCR's submitted by the contractor and also transmits a copy to PED for analysis and documentation by S&L.

When the aforementioned S&L reports become available to PCD, they will be used to assist them in the dispositioning of the CSCR's submitted by the contractor. If PCD receives a CSCR from the contractor which has not been previously identified by S&L in these reports, they will transmit a copy of the CSCR to PED for analysis and documentation by S&L.

Date When Full Compliance Will Be Achieved

We are effective this date in full compliance with regard to this item.