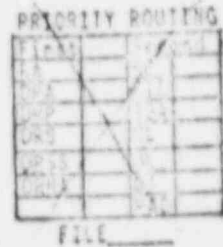




Commonwealth Edison

One First National Plaza, Chicago, Illinois
Address Reply to: Post Office Box 767
Chicago, Illinois 60690 - 0767

January 22, 1988



Mr. A. Bert Davis
Regional Administrator
U.S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

Subject: Quad Cities Station Units 1 and 2
Response to Inspection Report Nos.
50-254/87030 and 50-265/87030
NRC Docket Nos. 50-254 and 50-265

Reference: J.J. Harrison letter to Cordell Reed
dated December 17, 1987, transmitting
the subject Inspection Report.

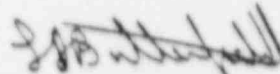
Dear Mr. Davis:

This letter is in response to the inspection conducted by Messrs. T. Tella and R. N. Sutphin from October 26 through November 5, 1987 of activities at Quad Cities Nuclear Power Station. The referenced letter indicated that certain activities appeared to be in noncompliance with NRC requirements. The Commonwealth Edison Company response to the Notice of Violation is provided in the Attachment. On January 19, 1988, Mr. J.J. Harrison granted an extension for this response from that date to January 22, 1988.

For reasons discussed in the Attachment, Commonwealth Edison does not agree that the computer programs cited in the Notice of Violation are in noncompliance with 10 CFR 50, Appendix B, Criterion V. We, therefore, request that you reconsider your conclusions in light of the information provided in this response.

If you have any further questions regarding this matter, please direct them to this office.

Very truly yours,


L. D. Butterfield
Nuclear Licensing Manager

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Attachment

cc: T. Ross - NRR
NRC Resident Inspector - Quad Cities

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ATTACHMENT

COMMONWEALTH EDISON COMPANY

RESPONSE TO NOTICE OF VIOLATION

As a result of the inspection conducted October 26 through November 5, 1987, the following violation was identified.

ITEM OF VIOLATION

10 CFR 50, Appendix B, Criteria V, as implemented by Commonwealth Edison Company (CECo) Topical Report CE-1-A, requires in part, that activities affecting quality shall be prescribed by documented instructions, procedures or drawings of a type appropriate to the circumstances.

Contrary to the above, the licensee failed to provide procedural and quality controls that ensure consistence with the design, software security, and configuration management for the computer software and documentation developed prior to 1986 and still used to calculate reactivity anomalies which satisfy technical specification requirements.

VIOLATION APPEAL AND ADDITIONAL INFORMATION

Quad Cities takes exception to the stated violation because of the significant procedural and quality checks that the referenced computer software underwent before being implemented. It is Commonwealth Edison's belief that the concerns raised about software control were properly addressed and that, in fact, there were appropriate procedural and quality controls for the computer software "ANOM" and "ANOMUP" developed in 1981. The procedures governing the implementation of this software, although not as sophisticated as the present computer software control program, were adequate for the control and quality checks necessary in 1981, and certainly adequate for the simple, short programs referenced in the violation that had previously existed on a Monroe calculator. These calculations are performed by the computer programs for convenience only. A manual method is part of the CECo BWR nuclear engineer training and certification program and prior to implementation of the computer and calculator programs, it was routinely used.

The current software control program in place at the station reflects the requirements of the Quality Assurance Manual, Quality Procedure No. 3-54 (QP3-54), Design Control for Operations - Digital Computers and Software. This Quality Procedure was developed to provide company-wide standards and practices for all applicable new software and changes to existing software. It applies standards for design, verification, validation,

testing and implementation of new computer programs and changes to existing computer programs. The implementation of QP3-54 at the station was an enhancement of existing quality verification methods and documentation for computer software, not a corrective measures program for erroneous computer software created before QP3-54.

The programs "ANOM" and "ANOMUP" were developed in 1981 under Station Procedure QTP 1113-2, Revision 1 - April 1978, Control and Documentation of New and Modified Nuclear Fuel Performance Safety-Related Calculations and Data. This procedure required an engineering review of the documentation of the program specification, the listing of the program and data, the program procedure, and the benchmark testing which was performed. It also required that an on-site review (OSR) be performed prior to approval for use. All of the requirements of QTP 1113-2 were satisfied for "ANOM" and "ANOMUP" and the documentation has been made available for review. And although the new QP3-54 requirements differ greatly in specific content from QTP 1113-2, the activities performed in 1981 for "ANOM" and "ANOMUP" are consistent with the general intent of assuring an acceptable end product. The programs as they exist today are correct and their accuracy has been ensured through the review performed under QTP 1113-2 in 1981 which CECO believes was "appropriate to the circumstances".

Quad Cities Station fully intends to comply with the requirements of QP3-54 in the future as it has in the past. That is, any applicable new or revised software will be handled according to the requirements of QP3-54 and the stations implementing procedures.

GENERAL DISCUSSION OF CECO SOFTWARE CONTROL

Although CECO believes that the reactivity anomaly programs and other fuel-related software developed and documented per QTP 1113-2 were controlled properly, Quad Cities Station will initiate a review to assure that other pre-QP3-54 software which may still be used for Technical Specification surveillance has also been treated with a reasonable level of verification and validation. Similar reviews will be performed for other CECO nuclear stations with the assistance of appropriate supporting departments. In some cases this type of review has already been performed as a part of the initial startup testing program (Byron and Braidwood) or is partially complete as a result of previous initiatives (Zion and Dresden). If any application programs that are currently being used to assure Technical Specification compliance are found deficient with respect to a reasonable level of documented quality verification, supplemental work will be performed to address any such deficiencies.

In general, a "reasonable level" for these older application programs would have included (as a minimum) documented verification that the code produced results equivalent to a hand calculation or other verified method. CECO believes that such basic bench testing has been performed on all software still used to demonstrate compliance with Technical Specifications.

Due to the acceptable performance of all such software to date, this effort will be performed on a priority below that of more critical computer support activities, including compliance with QP3-54 for new software or changes to existing software. Our estimated schedule for completion of these reviews is the fourth quarter, 1988.

In the past four years, CECO has devoted significant resources to the implementation of an effective software quality assurance program for new codes and changes to existing codes. The development of QP3-54 and procedural implementation alone required well over eight person-years. This excludes the significant additional resources expended to actually apply QP3-54's more rigorous standards to post-1985 software. CECO does not believe that attempting to fully upgrade all software generated in the previous 15 to 20 years to these current standards is required by existing regulations; nor would the resultant diversion of substantial resources be prudent or justified to achieve the small incremental benefit for software which has withstood the test of time and is currently functioning properly.

Commonwealth Edison requests your reconsideration of this issue for the reasons stated above.