

August 19, 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: REQUEST FOR ADDITIONAL INFORMATION - QUAD CITIES, UNITS 1 AND 2
(TAC NOS. M69476 AND M69477)

Dear Ms. Johnson:

In a letter dated June 28, 1996, Commonwealth Edison Company (ComEd) provided a plant-specific summary report in accordance with its commitment relating to Generic Letter 87-02 on the resolution of the Unresolved Safety Issue A-46 "Seismic Qualification of Equipment in Operating Plants." Program at Quad Cities, Units 1 and 2. The staff reviewed the summary report and has determined that additional information, as provided in the enclosed RAI, is necessary to complete the review of ComEd's USI A-46 response. Please respond within 60 days of receipt of this RAI.

Sincerely,

Original signed by

Robert M. Pulsifer, Project Manager
Project Directorate III-2
Division of Reactor Projects - III/IV
Office of Nuclear Reactor Regulation

Docket Nos. 50-254 and 50-265

Enclosure: As stated

cc w/encl: see next page

DF0111

Distribution:

Docket File	PUBLIC	PDIII-2 r/f	J. Roe, JWR
E. Adensam, ECA1	R. Capra	D. Dorman, 014B20	R. Pulsifer
OGC, 015B18	ACRS, T2E26	K. Manoly, 07E23	C. Moore
W. Kropp, RIII			

DOCUMENT NAME:G:\CMNTJR\QUAD\QC69476.RAI

*SEE PREVIOUS CONCURRENCE

To receive a copy of this document, indicate in the box: "C" = Copy without enclosures "E" = Copy with enclosures "N" = No copy

OFFICE	PM:PDIII-2	LA:PDIII-2	EMEB	D:PDIII-2	E
NAME	RPULSIFER	CMOORE	KMANOLY *	RCAPRA	
DATE	08/19/97	08/19/97	08/13/97	08/19/97	

9708220197 970819
PDR ADOCK 05000254
P PDR



NRC FILE CENTER COPY

I. Johnson
Commonwealth Edison Company

Quad Cities Nuclear Power Station
Unit Nos. 1 and 2

cc:

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

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

Mr. L. William Pearce
Station Manager
Quad Cities Nuclear Power Station
22710 206th Avenue North
Cordova, Illinois 61242

U.S. Nuclear Regulatory Commission
Quad Cities Resident Inspectors Office
22712 206th Avenue North
Cordova, Illinois 61242

Chairman
Rock Island County Board
of Supervisors
1504 3rd Avenue
Rock Island County Office Bldg.
Rock Island, Illinois 61201

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

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

Richard J. Singer
Manager - Nuclear
MidAmerican Energy Company
907 Walnut Street
P.O. Box 657
Des Moines, Iowa 50303

Brent E. Gale, Esq.
Vice President - Law and
Regulatory Affairs
MidAmerican Energy Company
One RiverCenter Place
106 East Second Street
P.O. Box 4350
Davenport, Iowa 52808

REQUEST FOR ADDITIONAL INFORMATION

QUAD CITIES, UNITS 1 AND 2

UNRESOLVED SAFETY ISSUE A-46

Reference: Letter from Commonwealth Edison Company to NRC with a Summary Report and Attachments, dated June 28, 1996

1. In Table 8.2 of the Seismic Evaluation Report attached to the referenced letter, which lists the Quad Cities A-46 equipment outliers and the status of their resolution, the Conservative Deterministic Failure Margin (CDFM) method of Electric Power Research Institute (EPRI) NP-6041, "Seismic Margin Report," is utilized to resolve the outliers for cable and conduit raceway systems. The methodology has not been approved by the staff for the analysis of safety-related systems and components, including the resolution of mechanical, electrical and structural component outliers in the Unresolved Safety Issue (USI) A-46 program. You are requested to re-evaluate your program and ensure that all the identified outliers will be resolved using the plant licensing-basis methodologies or other approaches acceptable to the staff.
2. The referenced submittal states that all outlier resolutions, either by analysis, physical modifications, or replacements, will be completed for each respective unit by the end of the second refueling outage for that unit after the receipt of the staff's Safety Evaluation Report. You are requested to elaborate on your decision to defer the resolution of identified outliers and your evaluation in support of the conclusion that the licensing basis for the plant will not be affected by your decision. Specifically, you are requested to provide the justification for assuring operability of the affected systems and components while a number of safety-related components in the safe shutdown path have been identified as outliers; thus rendering their seismic adequacy questionable and their conformance to the licensing basis uncertain.
3. In the Relay Evaluation Report, Section 3.7.3, it is stated that, "Of the 1249 contacts evaluated using the Seismic Capacity Screening process, 654 of the contacts passed." The number of the contacts that did not pass would, therefore, be 595 instead of 562, as stated. You are requested to clarify this discrepancy.
4. In Appendix C to the Seismic Evaluation Report, "Quad Cities Nuclear Station Walkdown Personnel Resumes," and Appendix A to the Relay Evaluation Report, "Resumes of Individuals Performing Relay Review," certificates were not provided to demonstrate that those who participated in the seismic walkdown inspections and relay review have completed all the necessary seismic qualification utility group (SQUG) training courses. You are requested to provide appropriate documentation to demonstrate that these individuals are qualified to participate in the USI A-46 Implementation Program.

ENCLOSURE

5. In Section 4.1.1 of the Seismic Evaluation Report, it appears that in some cases, the seismic demand for equipment located within 40-feet above the effective grade has been defined by the Housner ground response spectrum (GRS) instead of the amplified in-structure response spectra (IRS). Provide justification for using this approach at the Quad Cities site (shallow soil layer on competent rock), where the amplified IRS is shown to be higher than the GRS (Figure B-5 in the Appendix B of the Seismic Evaluation Report).
6. In Section 4.1.1 and Appendix B of the Seismic Evaluation Report, it appears that at Quad Cities, the IRS at floors within 40-feet above the effective grade are above the Bounding Spectrum (BS), and in some cases, above $1.5 \times BS$ at a number of frequencies (e.g., Reactor Building elevation 623.00, Figure B-4). Provide additional information regarding the procedures used in assessing the seismic adequacy of equipment and their anchorages in such cases.
7. GIP-2 (Section 4.4) recommends that expansion anchors not be used for anchoring vibratory equipment, such as pumps and air compressors. If used, GIP-2 recommends a large margin between the pullout loads and the pullout capacities. The screening verification data sheets (SVDS) in Appendix D to the Seismic Evaluation Report do not provide any information regarding the type of anchors used for the listed equipment. Provide information about the seismic adequacy of vibratory equipment secured by expansion anchors.
8. Section 6 of the Seismic Evaluation Report provides a summary describing the methodology for evaluating large, flat-bottom, vertical tanks. However, Table 6.1 does not contain information about such tanks. Identify the large, flat-bottom, vertical tanks that are not listed in Table 6.1, and provide the following related information:
 - a. Sketches showing tank dimensions, anchor chairs, anchorages (including embedment), and foundation.
 - b. A detailed calculation of a representative tank, which demonstrates the seismic adequacy of the tank utilizing the GIP-2 procedure.
9. Section 7.3 of the Seismic Evaluation Report indicated that 8 out of 11 limited analytical reviews (LARs) performed required outlier evaluations. In light of the result, provide a justification for not expanding the reviews to a larger sample size.
10. In reference to Table 7.3 in the Seismic Evaluation Report, LAR 001 involved a rod hung trapeze supporting 3-tier cable trays. Provide detailed calculations showing how the outlier for LAR 001 support was resolved, including the justification for the use of the rod fatigue test data and the generic acceptability curve from SEP Project 8050.

11. In reference to Table 7.3 in the Seismic Evaluation Report, a number of outlier resolutions for the raceway hangers were performed based on the high-confidence-low-probability-of-failure (HCLPF) and the CDFM methodologies, which, in view of Item 1, are not acceptable to the staff. Provide an alternate method for resolution of these raceway outliers, and provide a schedule for implementing the resolution.
12. Tables 8.1 and 8.2 in the Seismic Evaluation Report show a number of pieces of equipment that do not meet the seismic demand. The SRT has recommended methods for resolving these outliers. Provide a table showing how these outliers were actually resolved.