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Commonwealth Edison
1400 Opus Place
Downers Grove, Illinois 60515

August 15, 1991

Dr. Thomas E. Murley, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Attn: Document Control Desk

**Subject: Dresden Nuclear Power Station Units 2 and 3
Quad Cities Nuclear Power Station Units 1 and 2
10 CFR 50 Appendix J Testing of Two-Ply Bellow Assemblies
NRC Docket Nos. 50-237/249 and 50-254/265**

Reference: (a) T.J. Kovach to A. Bert Davis letter dated
March 27, 1991

(b) R. Stols to T.E. Murley letter dated
April 19, 1991

Dear Dr. Murley:

During the Quad Cities Unit 1, Cycle 11 Refueling Outage, Commonwealth Edison Company (CECo) identified that two-ply flexible metallic bellows could not be properly tested to meet 10 CFR Appendix J Type B test requirements. CECo notified the Commission of the investigation and findings in reference (a). Additional information was provided to the Commission in reference (b).

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CECo has investigated several alternate methods to conduct acceptable testing of the bellow assemblies; however, to date, no acceptable alternate means to perform testing has been validated. CECo, however, has developed a procedure which will ensure that the bellow assemblies are properly examined during the upcoming Refueling Outages. The procedure requires that at least one ply of the bellow assembly (each ply is a qualified containment boundary) is free of leaks. In the event a leak is identified, an engineering evaluation will be performed to quantify the leakage from the bellows. The proposed procedure is provided in the attachment. CECo believes that this procedure meets the intent of 10 CFR 50 Appendix J. In addition to the application of the procedure, CECo will perform an integrate leak rate test for the Dresden and Quad Cities containments during the upcoming outages. During this test, the bellow assemblies are challenged and therefore, will provide additional assurance that the containments are intact.

CECo respectfully requests the staff's concurrence of the procedure. The Dresden Unit 3 and Quad Cities Unit 2 Refueling Outages are currently scheduled to begin on September 7, 1991 and December 28, 1991, respectively.

If there are any questions or comments, please notify the Quad Cities Licensing Administrator on (708) 515-7283.

Very truly yours,



Rita Stols
Nuclear Licensing Administrator

Attachment

cc: A. Bert Davis, Regional Administrator-RIII
L.N. Olshan, Project Manager-NRR
B.L. Siegel, Project Manager-NRR
F.A. Maura, Inspector-RIII
T.E. Taylor, Senior Resident Inspector-Quad Cities
W.G. Rogers, Senior Resident Inspector-Dresden

**ATTACHMENT
PROCEDURE FOR BELLOW TESTING
AND EVALUATION**

The following procedure will be conducted to test and evaluate bellows. All two-ply penetration bellows will be locally pressurized (between the plies) to determine if leakage exists. Bellows that demonstrate leakage rates greater than a small, minimum threshold value will receive progressively increased inspections according to the following steps:

- (1) If a bellows demonstrates leakage rate above the minimum threshold, then it will be locally pressurized with helium. The outer ply will be tested for the presence of helium as an indication of leakage through the outer ply. Since both the inner and outer plies are qualified primary containment boundaries, no further inspection is required if there is no leakage through the outer ply. If the helium leakage is detected through the outer ply then inspection proceeds to step 2.
- (2) If helium leakage is detected through the outer ply, then the inner ply will be tested for the presence of helium. If there is no leakage through the inner ply then no further inspection is required. The station may decide not to test the inner ply due to accessibility or radiation exposure concerns. In this case the inspection proceeds to step 3.
- (3) If the helium leakage is detected through the outer and inner plies, then the bellows protective guard will be removed, pressure will again be introduced between the plies, and the outer ply surface examined by penetrant and snoop testing. All observed flaw indications will be measured and mapped.
- (4) All crack indications will be evaluated by the Nuclear Engineering Department (NED) and the current and projected leakage rate will be calculated. The NED review will include a structural assessment of the bellows with regards to critical flaw size.
- (5) The replacement process will be initiated for any bellows with a leakage rate exceeding the station's acceptance criteria.