February 9, 1995

Mr. D. L. Farrar, Manager
Nuclear Regulatory Services
Commonwealth Edison Company
Executive Towers West III
1400 Opus Place, Suite 500
Downers Grove, IL 60515

SUBJECT: REVISION TO EXEMPTION FROM APPENDIX J TO 10 CFR PART 50 FOR QUAD CITIES, UNITS 1 AND 2, AND DRESDEN, UNITS 2 AND 3 (TAC NOS. M90628, M90629, M90630 AND M90631)

Dear Mr. Farrar:

By letter dated October 4, 1994, you requested a revision to an Exemption that was granted from certain Type B (local leak rate) testing requirements of Appendix J to 10 CFR Part 50, for the two-ply containment penetration expansion bellows at Dresden and Quad Cities Stations. This revision deletes the requirement to perform a Type A (integrated leak rate) test each refueling outage to determine the leakage from these bellows because of the development of alternative Type B tests to determine the leakage from these assemblies. Pursuant to 10 CFR 50.12, enclosed is the granted Exemption from Appendix J, to 10 CFR Part 50.

A copy of this Exemption is being forwarded to the Office of the Federal Register for publication.

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. 50-237, 50-249, 50-254, 50-265

Enclosure: Exemption

cc w/encl: see next page

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cc:

Michael I. Miller, Esquire
Sidley and Austin
One First National Plaza
Chicago, Illinois 60690

Mr. Thomas P. Joyce
Site Vice President
Dresden Nuclear Power Station
6500 North Dresden Road
Morris, Illinois 60450-9765

Mr. J. Eenigenburg
Station Manager, Unit 2
Dresden Nuclear Power Station
6500 North Dresden Road
Morris, Illinois 60450-9765

Mr. D. Bax
Station Manager, Unit 3
Dresden Nuclear Power Station
6500 North Dresden Road
Morris, Illinois 60450-9765

U.S. Nuclear Regulatory Commission
Resident Inspectors Office
Dresden Station
6500 North Dresden Road
Morris, Illinois 60450-9766

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

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

Chairman
Grundy County Board
Administration Building
1320 Union Street
Morris, Illinois 60450

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

Mr. Stephen E. Shelton
Vice President
Iowa-Illinois Gas and
Electric Company
P.O. Box 4350
Davenport, Iowa 52808

Mr. L. William Pearce
Station Manager
Quad Cities Nuclear Power Station
22710 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

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
COMMONWEALTH EDISON COMPANY	)	Docket Nos. 50-237, 50-249
	)	50-254, 50-265
(Dresden Nuclear Power Station,	)	
Units 2 and 3; Quad Cities	)	
Nuclear Power Station,	)	
Units 1 and 2)	)	

EXEMPTION

I.

Commonwealth Edison Company (ComEd, the licensee) is the holder of Facility Operating License Nos. DRP-19 and DRP-25, which authorize operation of Dresden Nuclear Power Station, Units 2 and 3, at a steady state power level not in excess of 2527 megawatts thermal; and Facility Operating License Nos. DRP-29 and DRP-30, which authorize operation of Quad Cities Nuclear Power Station, Units 1 and 2, at a steady state power level not in excess of 2511 megawatts thermal. Dresden Station is comprised of two boiling water reactors at the licensee's site located in Grundy County, Illinois. Quad Cities Station is comprised of two boiling water reactors at the licensee's site located in Rock Island County, Illinois. These licenses provide, among other things, that Dresden and Quad Cities are subject to all rules, regulations, and Orders of the U.S. Nuclear Regulatory Commission (the Commission) now or hereafter in effect.

II.

By letter dated October 4, 1994, the licensee requested a revision to an exemption from certain Type B (local leak rate) testing requirements of

Appendix J to 10 CFR Part 50, for two-ply containment penetration expansion bellows at four reactor units. The request was made because the licensee has developed a set of alternative approaches which can be applied to ensure the intent of requiring a Type A test, as part of the original exemption, is met.

On February 6, 1992, the NRC issued an Exemption from certain Type B testing requirements of Appendix J. This exemption stated upon completion of the two-ply bellows testing program, a Type A integrated leak rate test (ILRT) will be performed to verify primary containment integrity. The testing program was intended to assure that at least one ply of a two-ply bellows is intact and that overall containment leakage is within its allowable limit as shown by Type A testing. The Type A test was the only test available that could properly quantify the bellows' leakages, albeit not individually. The Exemption also stated that if a method is developed which ensures a valid Type B test on one or more bellows assemblies, those bellows will also be excluded from the Exemption and will be required to be tested in accordance with the normal Type B test program.

III.

The original Exemption allowed ComEd to apply special testing techniques in lieu of performing a test which meets Type B requirements for these bellows which, at that time, were unable to be tested in strict conformance to the Appendix J criteria. The special testing techniques included a sequence of air and helium based local leak rate tests (LLRT) for each affected penetration and performance of a Type A leak rate test upon completion of the bellows testing during each refuel outage.

Commonwealth Edison Company now believes that the requirement to perform a Type A test every outage is not necessary to ensure that the bellows assemblies are adequately tested and leakage from any leaking bellows assembly is adequately quantified. Through testing of two-ply bellows at Dresden Station and Quad Cities Station, the licensee has developed the following insights:

1. There is minimal probability for the occurrence of a large leak in a two-ply bellows;
2. the special testing program is effective for identifying small leaks in two-ply bellows;
3. the Type A test is ineffective for identifying small leaks in two-ply bellows; and
4. more cost effective alternative methods have been developed for quantifying leakage.

At the time of the original request for an exemption, a Type A test was required every outage in accordance with the Technical Specifications (TS) and Appendix J criteria for determination of ILRT test frequency. Based on Appendix J and the TS, ComEd need not do a Type A test every refuel outage if they have completed two consecutive successful Type A tests. Quad Cities has completed two consecutive successful Type A tests. However, as previously stated, the original exemption requires a Type A test every outage to support the two-ply bellows leakage testing.

The licensee has discovered very small leaks using the special testing techniques in some bellows and they have subsequently been modified, removed from the list described in the original exemption and are now on a Type B testing schedule.

The licensee has identified several methods for conducting a valid Type B test on bellows since the original Exemption was issued. The first method involves the addition of a bellows test enclosure equipped with leaktight seals. The second involves installation of a rubber boot inside the drywell to form a seal between the drywell atmosphere and the bellows. The third is to weld a cover plate inside the drywell to provide a seal between the process pipe and the drywell atmosphere. The licensee also has the option to implement a complete replacement of the existing two-ply bellows assemblies with a new testable two-ply bellows.

The licensee has proposed the following revision to the approved exemption for non-Type B testable bellows. This proposal eliminates the need but keeps the option to perform a Type A test every refuel outage. The licensee proposed to include the following alternatives to the current requirement in place of the existing Section III.6 and .7 in the original Exemption:

> Upon completion of the two-ply bellows special testing program, the following actions shall be taken to address any two-ply bellows which have been identified as leaking through both plies:
>
> A) All bellows which leak through both plies shall be tested in accordance with Type B requirements to ensure license limits are met prior to return to service, or
>
> B) A Type A ILRT test shall be performed to verify primary containment integrity. All two-ply bellows assemblies which demonstrate leakage through both plies shall be replaced or subjected to a valid Type B test to demonstrate license limits are met prior to return to service from the subsequent refuel outage, unless ComEd provides justification for continued operation greater than one operating cycle.

The licensee states that the estimated cost of a Type A test, as described in NUREG-1493, "Performance-Based Containment Leak-Test Program," Draft Revision 2, dated March 31, 1994, is $1.89 million. Based on the number of historical leaking bellows found at Dresden and Quad Cities during the refuel outages, the cost of the Type A test per bellows ranges from $378k to $1.89M. The licensee also states that the Type A tests performed every outage since approval of the current exemption have never found a bellows leak which was undetected by the special testing program. The techniques of the special test program have the ability to detect leaks smaller than would be detected by the Type A test.

For a two-ply bellows that leaks through both plies, this revised exemption allows: 1) a valid Type B test using one of various developed alternatives to ensure compliance to license limits, or 2) a Type A test as required in the original exemption and, before the return to power in a subsequent refuel outage, replacement of the bellows with a testable bellows assembly or a valid Type B test to ensure license limits are met.

The staff finds that the underlying purpose of the regulation will be met in that the proposed testing program will detect bellows assemblies with significant flaws and result in replacement of flawed assemblies within one operating cycle, or be tested with a Type B test to ensure license limits are met during which period there is reasonable assurance that the bellows assemblies will not suffer excessive degradation. If the licensee should propose to wait longer than one cycle to replace any bellows assembly, the staff must evaluate and approve the request at that time.

IV.

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12(a)(i) and (a)(2)(ii), that (1) the Exemption from Appendix J is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security, and (2) application of the regulation in this particular circumstance is not necessary to achieve the underlying purpose of its rule.

The Commission concludes that the testing and replacement program for the containment penetration bellows assemblies is an acceptable alternative to the existing Appendix J testing requirement. Accordingly, the Commission hereby grants the Exemption from Appendix J.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this Exemption will have no significant impact on the quality of the human environment (59 FR 64001).

This exemption is effective upon issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Jack W. Roe, Director
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland
this 9th day of February 1995.