



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

August 18, 1989

*Dockets*

Docket Nos. 50-254 and 50-265

Mr. Thomas J. Kovach  
Nuclear Licensing Manager  
Commonwealth Edison Company  
Post Office Box 767  
Chicago, IL 60690

Dear Mr. Kovach:

SUBJECT: EXEMPTION FROM THE TECHNICAL REQUIREMENTS OF APPENDIX R TO 10 CFR  
PART 50 - QUAD CITIES NUCLEAR POWER STATION, UNIT NOS. 1 AND 2  
(TAC NOS. 57282, 57283, 57284 AND 57285)

Over the past several years, Commonwealth Edison Company (CECo) has requested a number of exemptions from the requirements of Section III.G of Appendix R to 10 CFR Part 50. The NRC evaluated and approved these requests in Safety Evaluation Reports issued on April 20 and July 21, 1988. A copy of the "Environmental Assessment and Finding of No Significant Impact" regarding the requested exemptions is enclosed and was published in the Federal Register on July 31, 1989 (54 FR 31596). Therefore, the exemptions requested by CECo and approved by the NRC are granted in the enclosed Exemption. A copy of the Exemption is being filed with the Office of the Federal Register.

Sincerely,

Thierry M. Ross, Project Manager  
Project Directorate III-2  
Division of Reactor Projects III,  
IV, V, and Special Projects  
Office of Nuclear Reactor Regulation

Enclosures:

1. Exemption
2. Environmental Assessment

cc w/enclosures:  
See next page

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Mr. Thomas J. Kovach  
Commonwealth Edison Company

Quad Cities Nuclear Power Station  
Units 1 and 2

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter of

COMMONWEALTH EDISON COMPANY

Quad Cities Nuclear Power Station,  
Unit Nos. 1 and 2

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Docket Nos. 50-254 and 50-265

EXEMPTION

I.

The Commonwealth Edison Company (CECo, the licensee) is the holder of Operating License No. DPR-29 which authorizes operation of Quad Cities Nuclear Power Station (QCNPS) Unit 1, and Operating License No. DPR-30 which authorizes operation of Unit 2. These licenses provide, among other things, that QCNPS Units 1 and 2 are subject to all rules, regulations, and Orders of the Commission now or hereafter in effect.

The station is comprised of two boiling water reactors at the licensee's site located in Rock Island County, Illinois.

II.

On November 19, 1980, the Commission published revised Section 50.48, "Fire Protection," and a new Appendix R to 10 CFR Part 50, "Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979," regarding fire protection features of nuclear power plants required to satisfy the General Design Criterion related to fire protection (Criterion 3, Appendix A to 10 CFR Part 50). The revised Section 50.48 and Appendix R became

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effective on February 17, 1981. Section III of Appendix R contains 15 subsections, lettered A through O, each of which specified requirements for a particular aspect of the fire protection features at a nuclear power plant. One of these sections, III.G "Fire Protection of Safe Shutdown Capability," was the subject of the licensee's exemption requests.

Section III.G of Appendix R requires fire protection for equipment important to safe shutdown. Such fire protection is achieved by various combinations of fire barriers, fire suppression systems, fire detectors, and separation of safety trains (III.G.2) or alternate safe shutdown equipment free of the fire area (III.G.3). The objective of this protection is to limit the extent of potential fire damage such that at least one train of equipment necessary for hot shutdown would be undamaged by fire, and systems necessary for cold shutdown could be repaired within 72 hours (III.G.1).

### III.

Exemptions from the requirements of 10 CFR Part 50, Appendix R, Section III.G had been previously issued by the Commission on June 23, 1983 for certain licensee identified plant configurations at QCNPS. Shortly thereafter, in response to Generic Letter (GL) 83-33, dated October 19, 1983, CECc conducted an independent evaluation of the QCNPS fire protection program in order to reverify compliance with Appendix R. As a result of this reverification effort, CECc submitted a report on December 18, 1984 which included several exemption requests from the technical requirements of Appendix R, Section III.G, with an associated fire hazard analyses as justification. Since then, based upon subsequent Commission guidance (e.g. GL 86-10 and IEN 86-25) and continued

self-evaluation, CECo submitted additional letters dated December 4, 1985, June 25, 1986 and July 22, 1986, September 30, October 1, and November 23, 1987. These letters modified and withdrew some previous exemption requests and proposed other exemption requests from Section III.G.

Concurrent with these subsequent submittals, in response to Commission inquiries on issues concerning high impedance faults and electrical isolation deficiencies that surfaced during review of the original December 18, 1984 letter, CECo submitted further exemption requests by letters dated January 12, 1987, September 30, 1987 (different letter than as above), October 1, 1987 (same letter as above), November 20, 1987, November 23, 1987 and November 30, 1987. These letters specifically requested approval for exemptions from Subsection III.G.1, to allow manual operations, including hot shutdown repairs (i.e. pulling and/or replacing fuses), for achieving and maintaining hot shutdown which would resolve the Commissions concerns and preclude other problems associated with fire-induced spurious actuations.

On December 1 (Hot Shutdown Repairs) and December 11 (Fire Protection) of 1987, the NRC issued Safety Evaluation Reports (SER) approving all exemptions from Appendix R Section III.G requested by CECo except for those identified by CECo in applications dated September 30, October 1, and November 23, 1987 (these exemption requests are still under NRC review). By letter dated February 19, 1988, CECo provided unsolicited comments to the aforementioned SERs and requested that some specific changes be made in them

to improve accuracy and clarity. Consequently, the NRC reissued revised SERs dated April 20 and July 21, 1988 (respectively).

The following is a list of the exemptions from Appendix R, Section III.G requested by CECo, with a brief description. Detailed descriptions of these exemption requests and of the NRC staff's evaluation are contained in the previously mentioned CECo and NRC documents, which are located in the Public Document Room.

- (1) Turbine Building Northern and Southern Zone Groups (Fire Areas TB-I and TB-III) to the extent that manual operations (including hot shutdown repairs) disallowed by Section III.G.1 are necessary to prevent spurious operations and high impedance faults of safe shutdown equipment.
- (2) Control power circuits for Diesel Generators and certain 480V breakers to the extent that hot shutdown repairs disallowed by Section III.G.1 are required to compensate for fire induced electrical isolation design deficiencies.
- (3) Unit 1 Reactor Building (Fire Zones 1.1.1.2, 11.2.2, 1.1.1.1S - Torus South, 1.1.1.1N - Torus North) and Unit 2 Reactor Building (Fire Zones 1.1.2.2, 11.3.2, 1.1.2.1S-Torus South, and 1.1.2.1N Torus North) to the extent that complete 3-hour fire rated barriers pursuant to Section III.G.2.a are not provided.
- (4) Unit 1 Reactor/Turbine Building Interface Boundary and Unit 2 Reactor/Turbine Building Interface Boundary to the extent that 3-hour fire rated barriers pursuant to Section III.G.2.a are not provided.
- (5) Unit 1 Reactor Building (Fire Zones 1.1.1.1, 1.1.1.2, 1.1.1.3, 1.1.1.4, 1.1.1.5, 1.1.1.6, 11.1.3, 11.2.1, 11.2.2, 11.2.3, and 11.2.4) and Unit 2

Reactor Building (Fire Zones 1.1.2.1, 1.1.2.2, 1.1.2.3, 1.1.2.4, 1.1.2.5, 11.1.4, 11.3.1, 11.3.2, 11.3.3, and 11.3.4) to the extent that automatic fire detection and fixed fire suppression systems pursuant to Section III.G.3 are not provided.

- (6) Units 1 and 2 Control Room (Fire Zone 2.0), Units 1 and 2 Auxiliary Computer Room, and Unit 1 and 2 Auxiliary Electric Equipment Room (Fire Zone 6.3) to the extent that a fixed fire suppression pursuant to Section III.G is not provided.
- (7) 4-KV Bus Duct Penetrations to the extent that complete 3-hour fire rated barriers pursuant to Section III.G.2.a are not provided.
- (8) Standby Gas Treatment System and the Reactor Building Vent System Piping Penetrations to the extent that a complete 3-hour fire rated barrier pursuant to Section III.G.2.a are not provided.
- (9) Drywell Expansion Gap in Units 1 and 2 to the extent that automatic fire detection and fixed fire suppression systems pursuant to Section III.G.3 are not installed.
- (10) Units 1 and 2 Turbine Building Southern and Central Zone Groups to the extent that a complete 3-hour fire rated barrier pursuant to Section III.G.2.a is not provided.
- (11) Units 1 and 2 Turbine Building Southern and Northern Zone Groups to the extent that a complete 3-hour fire rated barrier pursuant to Section III.G.2.a is not provided.
- (12) Turbine Building Operating Floor (Fire Zones 8.2.8.A, 8.2.8.B, 8.2.8.C, 8.2.8.D, and 8.2.8.E) to the extent that complete 3-hour fire rated barriers pursuant to Section III.G.2.a are not provided.

- (13) Watertight Door (Fire Zone 11.1.1.B) to the extent that a complete 3-hour fire rated barrier pursuant to Section III.G.2.a is not provided.
- (14) Northern/Central Zone Groups and Fire Zone 8.2.8.D to the extent that a complete 3-hour fire rated barrier pursuant to Section III.G.2.a is not provided.

The NRC did not evaluate CEC's exemption request from III.G.3 for the Turbine Building (Northern and Central Zone Group, and Operating Floor) and Southern/Northern Zone Groups (Fire Zones 8.2.1.A, 11.1.1.A, and 8.2.7.D) because exemptions are not required per the guidance contained in Generic Letter 86-10.

#### IV.

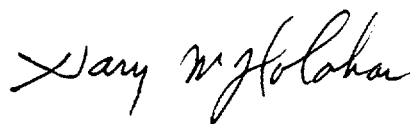
Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12, these exemptions (listed above) are authorized by law, will not present an undue risk to the public health and safety, and are consistent with the common defense and security. The Commission further determines that special circumstances, as provided in 10 CFR 50.12(a)(2)(ii), are present to justify granting the exemptions; namely, that application of the regulation in these particular circumstances is not necessary to achieve the underlying purpose of the rule. The special circumstances of each CEC exemption request was reviewed in detail by the staff's SERs dated April 20 and July 21, 1988. In general, the underlying purpose of the rule is to accomplish safe shutdown in the event of a single fire and maintain the plant in a safe shutdown condition. This is accomplished by assuring that sufficient undamaged equipment is available to support safe shutdown assuming a fire within the area of concern. In the areas for which an exemption is being requested, passive

as well as active fire protection features assure that any single fire will not result in the loss of safe shutdown capability. These features include manual actions, automatic suppression, and early detection of fires in their incipient stages. The fire protection features, in conjunction with low combustible loadings, provide a high degree of assurance that a single fire will not result in loss of safe shutdown capability. In addition, the special circumstances of 10 CFR 50.12(a)(2)(iii) apply in that compliance would result in costs that are significantly in excess of those contemplated when the regulation was adopted. Providing additional protection features, as would be required to meet the regulations, would not result in a significant increase in the level of protection and would result in undue costs and resource expenditures for the licensee in additional engineering, procurement of materials, fabrication, and installation. Accordingly, the Commission hereby grants exemptions for the conditions listed in Section III above.

Pursuant to 10 CFR 51.32, the Commission has determined that granting these exemptions will have no significant impact on the environment as published in the Federal Register on July 31, 1989 (54 FR 31596).

This exemption is effective upon issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Gary M. Holahan, Acting Director  
Division of Reactor Projects III,  
IV, V, and Special Projects  
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland  
this 18th day of August, 1989

August 18, 1989

Docket Nos. 50-237 and 50-249

Mr. Thomas J. Kovach  
Nuclear Licensing Manager  
Commonwealth Edison Company  
Post Office Box 767  
Chicago, IL 60690

Dear Mr. Kovach:

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Sincerely,

Thierry M. Ross, Project Manager  
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\*See previous concurrences

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\*PDIII-2:PM  
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GHolahan  
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