

# PHILADELPHIA ELECTRIC COMPANY

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V. S. BOYER  
SR. VICE PRESIDENT  
NUCLEAR POWER

SEP 21 1984

Mr. Harold R. Denton, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Subject: Limerick Generating Station, Units 1 & 2,  
Docket Nos. 50-352 & 50-353  
Request for Exemption from 10CFR50, Appendix A, GDC 56

Dear Mr. Denton:

The Limerick Safety Evaluation Report (NUREG-0991, Supplement 1) concludes that the applicant's design of the containment isolation provisions for the hydrogen recombiners "... provided an adequate basis for justifying operation of Limerick Unit 1 through the first cycle. Implementation of the staff position requiring the addition of an (additional) automatic isolation valve in each of the hydrogen recombiner lines penetrating the containment should be completed before startup after the first refueling outage." The SER further states that this represents a justifiable temporary exemption from 10CFR50, Appendix A, General Design Criterion 56.

The SER also states that "... the NRC staff finds the proposed deviation from the requirements of SRP 6.2.4 (for the Drywell Chilled Water and Reactor Enclosure Cooling Water isolation valves) during the first cycle of operation is acceptable." This deviation also represents a justifiable temporary exemption from 10CFR50, Appendix A, General Design Criteria 56.

Based upon the foregoing it is requested that, in accordance with Section 50.12 of the Commission's regulations, the general conclusions of the SER be confirmed by the issuance of specific exemptions to the requirements of 10CFR50, Appendix A, General Design Criterion 56. An affidavit in support of this request is attached hereto.

Very truly yours,

*V. S. Boyer*

DRH/cmv/09178403

Attachment

Copy to: See Attached Service List

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COMMONWEALTH OF PENNSYLVANIA

:

SS.

COUNTY OF PHILADELPHIA

V. S. Boyer being first duly sworn, deposes and says:

That he is Senior Vice President, Nuclear Power of Philadelphia Electric Company, the Applicant herein; that he has reviewed the foregoing request, pursuant to Section 50.12 of the United States Nuclear Regulatory Commission's regulations, for certain specific exemptions to the requirements of General Design Criterion 56 of Appendix A to 10CFR Part 50 together with the Justification For The Requested Exemption and knows the contents thereof; and that the statements and matters set forth therein are true and correct to the best of his knowledge, information and belief.

V. S. Boyer  
Sr. Vice President

Subscribed and sworn to  
before me this 21<sup>st</sup> day  
of September, 1984.

Patricia D. Scholl  
Notary Public

PATRICIA D. SCHOLL  
Notary Public, Philadelphia, Philadelphia Co.  
My Commission Expires February 10, 1986

cc: Judge Lawrence Brenner (w/enclosure)  
Judge Peter A. Morris (w/enclosure)  
Judge Richard F. Cole (w/enclosure)  
Judge Christine N. Kohl (w/enclosure)  
Judge Gary J. Edles (w/enclosure)  
Judge Reginald L. Gotchy (w/enclosure)  
Troy B. Conner, Jr., Esq. (w/enclosure)  
Ann P. Hodgdon, Esq. (w/enclosure)  
Mr. Frank R. Romano (w/enclosure)  
Mr. Robert L. Anthony (w/enclosure)  
Ms. Maureen Mulligan (w/enclosure)  
Charles W. Ellicott, Esq. (w/enclosure)  
Zori G. Ferkin, Esq. (w/enclosure)  
Mr. Thomas Gerusky (w/enclosure)  
Director, Penna. Emergency (w/enclosure)  
Management Agency  
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David Wersan, Esq. (w/enclosure)  
Robert J. Sugarman, Esq. (w/enclosure)  
Martha W. Bush, Esq. (w/enclosure)  
Spence W. Perry, Esq. (w/enclosure)  
Jay M. Gutierrez, Esq. (w/enclosure)  
Atomic Safety & Licensing (w/enclosure)  
Appeal Board  
Atomic Safety & Licensing (w/enclosure)  
Board Panel  
Docket & Service Section (w/enclosure)  
Mr. James Wiggins (w/enclosure)  
Mr. Timothy R. S. Campbell (w/enclosure)

## JUSTIFICATION FOR THE REQUESTED EXEMPTIONS

NRC regulations provide for specific exemptions in 10CFR50.12(a). The Commission has provided additional guidance<sup>1</sup> regarding this regulation in an order in the Shoreham proceeding<sup>1</sup>, as modified by Commission action on July 25, 1984.

In view of the standards in 10CFR50.12(a) and the Commission's guidance regarding the issuance of exemptions, we may synthesize the circumstances in which the requested exemption is warranted as follows: (1) the activities to be conducted are authorized by law, (2) operation with the exemption does not endanger life or property because such would not involve undue risk to the health and safety of the public, (3) the common defense and security are not endangered, and (4) the exemption is in the public interest because, on balance, there is good cause for granting it and the public health and safety are adequately protected.

### I. The Requested Exemptions and the Activities Which Would Be Allowed Thereunder Are Authorized by Law

If the criteria established in 10CFR50.12(a) are satisfied, as they are in this case, and if no other prohibition of law exists to preclude the activities which would be authorized by the requested exemption, and there is no such prohibition, then the Commission is authorized by law to grant this exemption request.

### II. The Requested Exemptions Will Not Endanger Life or Property

10CFR50, Appendix A, General Design Criteria 56 requires that lines which penetrate the containment and communicate with the containment interior must have two automatic isolation valves unless it can be demonstrated that the containment isolation provisions for a specific class of lines are acceptable on some other defined basis. As discussed in Limerick FSAR Section 6.2.4.3.1.3, containment isolation provisions for this class of line at Limerick either meet the explicit requirements of GDC 56 or are acceptable alternatives to the explicit requirements of GDC 56 in accordance with defined regulatory practice.

#### A. Post-LOCA Hydrogen Recombiners

Each of the lines associated with the hydrogen recombiners which penetrate primary containment is provided with a normally-closed, motor-operated butterfly valve that can be manually actuated from the control room. These isolation valves receive automatic isolation signals. For operation of the recombiners after a LOCA, the isolation signals to these valves are overridden by using keylocked bypass switches.

The engineered safety feature recombining system constitutes a closed system outside containment which is employed as a second isolation barrier. The isolation provisions for the recombining system meet all of the design criteria for a closed system outside containment as specified in Regulatory Guide 1.141, ANSI Standard N-271, and Standard Review Plan 6.2.4, as discussed below:

- a) The closed system does not communicate with either the secondary containment atmosphere or the environment.
- b) The closed system has been designed, fabricated, installed, and stamped in accordance with ASME Section III, Class 2 requirements.
- c) The closed system has a design temperature and pressure at least equal to the containment design conditions.
- d) The closed system is designed as seismic Category I.
- e) The system is designed to withstand the loads and environmental conditions accompanying a loss-of-coolant-accident.
- f) High energy and moderate energy pipe breaks will not effect recombining system continuity when it is required for containment isolation.
- g) The recombining system is designed to be leak-tight and will be periodically leak tested at the containment peak pressure.
- h) Any leakage from the system will be confined within the secondary containment and will be diluted and filtered prior to release.
- i) The closed system is protected from missiles.

The NRC staff has advised that the justification provided in SRP 6.2.4 for accepting a closed system outside containment as the second isolation barrier was intended to apply only to emergency core cooling system suction lines. The applicant has subsequently agreed to install additional isolation valves prior to startup after the first refueling outage.<sup>4</sup>

The Limerick Safety Evaluation Report (NUREG-0991, Supplement 1) states "... that the applicant's rationale provide(s) an adequate basis for justifying operation of Limerick Unit 1 through the first cycle." The SER further states that installation of the added valves at a later date constitutes a justifiable temporary exemption from 10CFR50, Appendix A, General Design Criteria 56.



B. Drywell Chilled Water (DCW) and Reactor Enclosure Cooling Water (RECW)

Each of the lines associated with the DCW system which penetrate primary containment is provided with one motor-operated, automatic isolation valve located adjacent to the containment penetration. The two parallel outboard isolation valves do not currently receive automatic isolation signals and can not presently be closed simultaneously without the use of jumpers. Each of the lines associated with the RECW system which penetrate primary containment is provided with one motor-operated isolation valve located adjacent to the containment penetration. Two parallel outboard isolation valves are also provided. The valves on the emergency service water interconnections are locked closed. The valves on the RECW supply and return lines are motor-operated valves which are remote manually closed from the control room.

The lines within the primary containment associated with these systems do not communicate with either the containment atmosphere or the reactor coolant pressure boundary. They are designed to withstand the same seismic loads as Seismic Category I systems. The RECW and DCW Systems have been designed to Quality Group C and D standards, respectively. These quality standards have been supplemented by quality control inspections by trained and qualified inspectors that performed and documented inspections on all system piping, welds, valves, and hangers. These systems are designed with welded joints and use the same materials that are used in Safety Class 2 piping systems. The systems have been designed to withstand the external pressure from the containment structural integrity test and use materials capable of withstanding temperatures in excess of the containment design temperature. The systems do not connect to the environment except through a vent in the systems' head tanks.

The probability of a release to the environment through these closed systems inside containment is low. For a release to occur, it is necessary to have a loss of coolant accident resulting in both core damage and a closed system pipe break inside containment coincident with a failure of the automatic and remote manual isolation valves.

The applicant has agreed to provide all of the containment isolation valves in these lines with diverse, automatic isolation signals prior to startup after the first refueling outage. In the interim, special operating instructions will be implemented for those valves not receiving automatic isolation signals to ensure appropriate closure following onset of an accident.

The Limerick SER states that "... the NRC staff finds that the proposed deviation from the requirements of SRP 6.2.4 during the first cycle of operation is acceptable." This deviation represents a justifiable, temporary exemption from 10CFR50, Appendix A, General Design Criteria 56.

In light of the above, it can be concluded that there is a reasonable assurance against undue containment leakage provided under the exemptions and that no material increase in the probability or extent of leakage is to be expected. Therefore, there is no significant increase in the probability of higher post-accident offsite or onsite doses related to the exemptions and therefore no significant increase in environmental impact beyond that experienced with no exemptions.

III. The Requested Exemptions Will Not Endanger the Common Defense and Security

The common defense and security are not implicated in these exemption requests. Only the potential impact on public health and safety is at issue.

IV. The Requested Exemptions Are In The Public Interest

The requested exemptions are in the public interest in that any delay in commencement of low power testing and power ascension would cause a delay in the attainment of commercial operation and since, as shown above, the health and safety of the public will be adequately protected.

Limerick Unit 1 is physically complete in all essential respects and is ready for low power testing and ascension to full power. Upon satisfactory completion of the power ascension testing program in accordance with the license and technical specifications, the facility will be placed in commercial operation.

If literal compliance with General Design Criteria 56 discussed in Section II above were mandated, major design changes would be required which would require a corresponding delay in the operation of Limerick Unit 1. Any delay in the operation of Limerick Generating Station Unit 1 would cause the cost of the unit to increase. Under standard ratemaking practices, these costs would eventually have to be borne by the ratepayers.

Denial of the requested exemption would have a substantial financial impact on PECO and its customers and is not warranted inasmuch as, as shown above, the public health and safety are adequately protected.

- 1 Order, Long Island Lighting Company (Shoreham Nuclear Power Station, Unit 1), CL1-84-8, May 6, 1984.
- 2 Staff Requirements Memorandum MB40725A, July 27, 1984.
- 3 See: U.S. vs. Allegheny-Ludlum Steel Corp., 406 U.S. 742, 755 (1972).
- 4 J. S. Kemper (PECO) letter to A. Schwencer (NRC) dated September 22, 1983.