

January 30, 1998

Mr. George A. Hunger, Jr.
Director-Licensing, MC 62A-1
PECO Energy Company
Nuclear Group Headquarters
Correspondence Control Desk
P.O. Box No. 195
Wayne, PA 19087-0195

SUBJECT: ISSUANCE OF EXEMPTION FROM THE REQUIREMENTS OF 10 CFR 70.24,
LIMERICK GENERATING STATION, UNIT 1 (TAC NO. MA0327)

Dear Mr. Hunger:

By letter dated December 23, 1997, the Philadelphia Electric Company requested an exemption from certain requirements of 10 CFR 70.24 concerning criticality monitors.

Based upon the information provided, there is reasonable assurance that irradiated and unirradiated fuel will remain subcritical; furthermore, you maintain radiation monitors in accordance with General Design Criterion (GDC) 63. The low probability of a criticality together with your adherence to GDC 63 constitutes good cause for granting an exemption from 10 CFR 70.24(a).

The U.S. Nuclear Regulatory Commission, pursuant to 10 CFR 70.14, has issued the enclosed exemption for Limerick Generating Station, Unit 1. A copy of the exemption is being forwarded to the Office of Federal Register for publication.

This completes our effort on this issue and we are, therefore, closing out TAC No. MA0327.

Sincerely,

/s/

Bartholomew C. Buckley, Senior Project Manager
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket No. 50-352

Enclosure: Exemption

cc w/encl: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

January 30, 1998

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Director-Licensing, MC 62A-1
PECO Energy Company
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Sincerely,

A handwritten signature in cursive script that reads "Bartholomew C. Buckley".

Bartholomew C. Buckley, Senior Project Manager
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket No. 50-352

Enclosure: Exemption

cc w/encl: See next page

Mr. George A. Hunger, Jr.
PECO Energy Company

Limerick Generating Station, Units 1 & 2

cc:

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Linfield, PA 19468

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of

PHILADELPHIA ELECTRIC
COMPANY

(Limerick Generating Station, Unit 1)

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Docket No. 50-352

EXEMPTION

I.

The Philadelphia Electric Company (the licensee) is the holder of Facility Operating License No. NPF-39, which authorizes operation of the Limerick Generating Station (LGS), Unit 1. The license provides, among other things, that the licensee is subject to all rules, regulations, and orders of the Commission now or hereafter in effect.

The facility consists of two boiling-water reactors at the licensee's site located in Montgomery and Chester Counties, Pennsylvania.

II.

Section 70.24 of Title 10 of the CODE OF FEDERAL REGULATIONS, "Criticality Accident Requirements," requires that each licensee authorized to possess special nuclear material (SNM) shall maintain a criticality accident monitoring system in each area where such material is handled, used, or stored. Subsections (a)(1) and (a)(2) of 10 CFR 70.24 specify detection and sensitivity requirements that these monitors must meet. Subsection (a)(1) also specifies that all areas subject to criticality accident monitoring must be covered by two detectors.

Subsection (a)(3) of 10 CFR 70.24 requires licensees to maintain emergency procedures for each area in which this licensed SNM is handled, used, or stored and provides that (1) the procedures ensure that all personnel withdraw to an area of safety upon the sounding of a criticality accident monitor alarm, (2) the procedures must include drills to familiarize personnel with the evacuation plan, and (3) the procedures designate responsible individuals for determining the cause of the alarm and placement of radiation survey instruments in accessible locations for use in such an emergency. Subsection (b)(1) of 10 CFR 70.24 requires licensees to have a means to identify quickly personnel who have received a dose of 10 rads or more. Subsection (b)(2) of 10 CFR 70.24 requires licensees to maintain personnel decontamination facilities, to maintain arrangements for a physician and other medical personnel qualified to handle radiation emergencies, and to maintain arrangements for the transportation of contaminated individuals to treatment facilities outside the site boundary. Paragraph (c) of 10 CFR 70.24 exempts Part 50 licensees from the requirements of paragraph (b) of 10 CFR 70.24 for SNM used or to be used in the reactor. Paragraph (d) of 10 CFR 70.24 states that any licensee who believes that there is good cause why he should be granted an exemption from all or part of 10 CFR 70.24 may apply to the Commission for such an exemption and shall specify the reasons for the relief requested.

III.

The SNM that could be assembled into a critical mass at LGS, Unit 1, is in the form of nuclear fuel; the quantity of SNM other than fuel that is stored on site in any given location is small enough to preclude achieving a critical mass. The Commission's technical staff has evaluated the possibility of an inadvertent criticality of the nuclear fuel at LGS, Unit 1, and has determined that it is extremely unlikely for such an accident to occur if the licensee meets the following seven criteria:

1. Only three new fuel assemblies are allowed out of a shipping cask or storage rack at one time.
2. The k-effective does not exceed 0.95, at a 95% probability, 95% confidence level in the event that the fresh fuel storage racks are filled with fuel of the maximum permissible U-235 enrichment and flooded with pure water.
3. If optimum moderation occurs at low moderator density, then the k-effective does not exceed 0.98, at a 95% probability, 95% confidence level in the event that the fresh fuel storage racks are filled with fuel of the maximum permissible U-235 enrichment and flooded with a moderator at the density corresponding to optimum moderation.
4. The k-effective does not exceed 0.95, at a 95% probability, 95% confidence level in the event that the spent fuel storage racks are filled with fuel of the maximum permissible U-235 enrichment and flooded with pure water.
5. The quantity of forms of special nuclear material, other than nuclear fuel, that are stored on site in any given area is less than the quantity necessary for a critical mass.
6. Radiation monitors, as required by General Design Criterion 63, are provided in fuel storage and handling areas to detect excessive radiation levels and to initiate appropriate safety actions.
7. The maximum nominal U-235 enrichment is limited to 5.0 weight percent.

By letter dated December 23, 1997, the licensee requested an exemption from 10 CFR 70.24. In this request the licensee addressed the seven criteria given above. The Commission's technical staff has reviewed the licensee's submittals and has determined that LGS, Unit 1 meets the applicable criteria. Criteria 2 and 3 are not applicable to LGS, Unit 1 since it has no fresh

fuel storage racks, for prevention of inadvertent criticality; therefore, the staff has determined that it is extremely unlikely for an inadvertent criticality to occur in SNM handling or storage areas at LGS, Unit 1.

The purpose of the criticality monitors required by 10 CFR 70.24 is to ensure that if a criticality were to occur during the handling of SNM, personnel would be alerted to that fact and would take appropriate action. The staff has determined that it is extremely unlikely that such an accident could occur; furthermore, the licensee has radiation monitors, as required by General Design Criterion 63, in fuel storage and handling areas. These monitors will alert personnel to excessive radiation levels and allow them to initiate appropriate safety actions. The low probability of an inadvertent criticality, together with the licensee's adherence to General Design Criterion 63, constitutes good cause for granting an exemption to the requirements of 10 CFR 70.24(a).

IV.

The Commission has determined that, pursuant to 10 CFR 70.14, this exemption is authorized by law, will not endanger life or property or the common defense and security, and is otherwise in the public interest. Therefore, the Commission hereby grants the Philadelphia Electric Company, an exemption from the requirements of 10 CFR 70.24(a) for Limerick Generating Station, Unit 1.

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 (63 FR 4497).

This exemption is effective upon issuance.

Dated at Rockville, Maryland, this 30th day of January 1998.

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by
Samuel J. Collins
Samuel J. Collins, Director
Office of Nuclear Reactor Regulation

*Previously Concurred

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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 (63 FR 4497).

This exemption is effective upon issuance.

Dated at Rockville, Maryland, this 30th day of January 1998.

FOR THE NUCLEAR REGULATORY COMMISSION


Samuel J. Collins, Director
Office of Nuclear Reactor Regulation