

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

In the Matter of
PECO Energy Company

Docket Nos. 50-277
and 50-278

(Peach Bottom Atomic Power Station,
Units 2 and 3)

EXEMPTION

1.

PECO Energy Company (the licensee) is the holder of Facility Operating License Nos. DPR-44 and DPR-56, which authorize operation of Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3. The licenses provide, 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 York County, Pennsylvania.

11.

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)(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 PBAPS, Units 2 and 3, 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 PBAPS, Units 2 and 3, 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 March 18, 1998, 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 submittal and has determined that PBAPS, Units 2 and 3, meet the applicable criteria. Criteria 2 and 3 are not applicable to PBAPS, Units 2 and 3, since Technical Specification Section 4.3.1.2 specifically states, "The new fuel storage racks shall not be used for fuel storage. The new fuel shall be stored in the spent fuel storage racks." The reference to General Design Criterion (GDC) 63 was initially incorporated to ensure that licensees receiving an exemption to 10 CFR 70.24 would not erroneously view the exemption as

the basis for removing from the spent fuel pool area radiation monitors that were meeting other monitoring requirements, such as those contained in GDC 63. However, Criterion 63 is not applicable to PBAPS because the units were evaluated against the draft GDCs current when PBAPS was licensed rather than the current GDCs proposed in July 1967. Thus, even though PBAPS is not required to meet GDC 63, the staff has determined that it is extremely unlikely for an inadvertent criticality to occur in SNM handling and storage areas at PBAPS, Units 2 and 3. Additionally, PBAPS, Units 2 and 3, have area radiation monitors (ARMs) that meet the requirements of 10 CFR 70.24(a)2, and function as a monitoring system capable of detecting criticality in the only area (the refuel floor) where accidental criticality is possible.

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. The low probability of an inadvertent criticality constitutes good cause for granting an exemption from 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 PECO Energy Company, an exemption from the requirements of 10 CFR 70.24(a) for Peach Bottom Atomic Power Station, Units 2 and 3.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this exemption will have no significant impact on the environment (63 FR 33735).

This exemption is effective upon issuance.

Dated at Rockville, Maryland, this 22nd day of June 1998.

FOR THE NUCLEAR REGULATORY COMMISSION

original signed by

Samuel J. Collins, Director
Office of Nuclear Reactor Regulation

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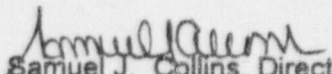
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